

DECEMBER 1924 ~ No 227

Monthly

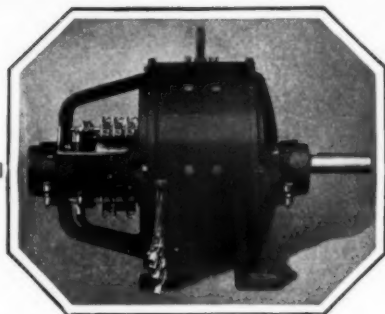
A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL
BLUE BOOK**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A.H.HITCHCOCK
1220-1235 Casson Building
Chicago

FOR INDEXES SEE LAST PAGES



A stable design representing the user's experience

Type T Reliance Motors were offered to motor users as a stable design embodying their ideas of a truly heavy-duty general purpose motor. In eight years no change has been made which affects interchangeability.

Eight years of hard service have demonstrated the wisdom of getting more of the user's experience into motor design. Type T motors in installations of 1 to 2000 have been doing the hard jobs and doing them well. We shall be glad to submit complete evidence.

Bulletin 2014 gives details

Reliance Electric & Engineering Co.

1050 Ivanhoe Road, Cleveland, Ohio

Branches:

Boston New York Philadelphia Pittsburgh Chicago Detroit Cincinnati Birmingham, Ala.

We specialize in motors, sizes 1/2 to 200 h. p. constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type T Heavy Duty
RELIANCE MOTORS
Direct Current

SPEED AND FEED TESTS

With the



You Ought to Have This Booklet!

At the Atlantic City Convention of the American Railway Association, Mechanical Division, June 11-18, 1924, Cle-Forge High Speed Drills established a new world's drilling record — beating their own record set up in 1923.

This booklet gives a complete summary of the Atlantic City tests and is a valuable guide to the shopman interested in finding out just what high speed drills can and will do.

A copy will be sent you—gladly and without charge—for the asking

The **CLEVELAND** **TWIST DRILL COMPANY**
CLEVELAND
NEW YORK-CHICAGO-LONDON

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

Manufacturers, also, of

Carbon and High Speed Drills for every purpose; "Mezzo" Super-Carbon Drills; Hand, Jobbers' and Shell Reamers; "Peerless" High Speed Reamers; "Paradox" Adjustable Reamers; "Quick-Set" Reamers; Chucking Reamers for Turret Lathes; Counterbores; Countersinks; Sockets; End Mills; and the "Ezy-Out" Screw Extractors.

CLE◆FORGE

TRADE MARK REG. U. S. PAT. OFF.

"QUICKWORK"

(TRADE-MARK REGISTERED THROUGHOUT THE WORLD)

ROTARY SHEARS

MADE IN VARIOUS SIZES AND STYLES

For cutting all gauges of sheet and plate up to 1 inch thick used in building Ships, Boilers, Cars, Tanks and General Plate and Sheet Metal Work. Cut square or beveled edges in straight or irregular shapes, also cut rings and discs, and cut openings without starting in from side of sheet. Leaves the metal flatter than any other Rotary or Short Straight-Bladed Shear. Cuts a clean edge that requires no finishing.

Joggling and flanging rolls can be used interchangeably with the cutters.

Do Long Straight Cutting Faster Than Any Other Shear of Any Kind

One "QUICKWORK" does the work of a number of old style machines
Does it better and from two to ten times quicker

Eliminate Oxy-acetylene Cutting and Plate Planing

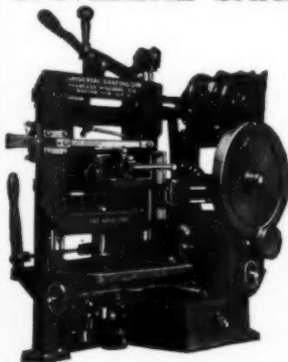
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THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.

Cable Address: "QUICKWORK." All standard codes used.
New York Exhibit: Grand Central Palace.

Agent for British Isles: Oliver Machinery Co., Manchester, England.

—PEERLESS— UNIVERSAL SHAPING SAW



Latest and Most
Efficient in Hack-saws
Faster—More Accu-
rate and Economical

REDUCES

Cutting Time
Wasted Material
Blade Expense

ELIMINATES

Semi Finishing Jobs
Cap. 6"x6" & 13"x13"

PEERLESS

HIGH SPEED HACK-SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

Peerless Machine Co.

1609 Racine St.

Racine, Wisconsin

Write for Details

Efficiency—

If it's a Nazel Air Hammer

the air is being used at the temperature which it attains in compression, therefore there are no heat losses—result: High Efficiency.

In the case of a hammer worked from an independent air supply, there is a very considerable loss due to the cooling of air before use. The best results therefore can only be obtained in a hammer by using the air while still hot from compression. A condition attained only in a Nazel.

*The NAZEL HAMMER BOOK
explains in detail. It's free*

Nazel Engineering & Machine Works

5th and Luzerne Sts.

Philadelphia, Penna.



Built in three types, Six Sizes, Belt or Motor Driven, with capacities up to 7" square for all kinds of machine, rail-road and general forging

NAZEL HAMMERS require no storage tanks, independent compressors or piping.



This Free Chart

The Correct Guide in Cutting

Your request on your letterhead will bring this authoritative chart.

RACINE "JUNIOR"

Portable High Speed Metal Cutting Machine, easily moved to any location near electric light socket. Smooth, vibrationless, need not be bolted to floor. Normal capacity 0 to 4".

Use "Racine" H. S. Wood and Metal Band Saw Blades & "Racine" H. S. Tungsten Power and Hand Hack Saw Blades. *Catalog H.*

Racine Tool & Machine Co.

1429 Junction Av., Racine, Wis.
"STANDARD THE WORLD OVER"

Can Save 5 Hours a Day—

Peter Bros. Abrasive Metal Cutter

If you can keep it busy, this fast machine will save a lot of valuable time. Cuts quickly and accurately, square or otherwise, at option of operator. Eliminates nicking and breaking, prevents waste of stock. Equally good with high speed steel, angles, channels, tees, brass or iron. Doesn't draw the temper.

8" Size \$22.50, with C. S.
Splendid for tool room. Cuts all high-speed steel up to $\frac{5}{8}$ " square.

12" Size \$60, with C. S.
Cuts up to $2\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

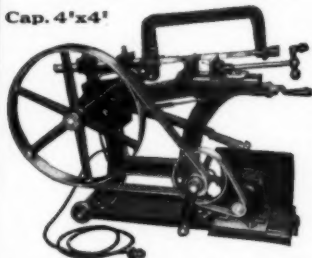
PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



Motor Driven—Money Saving

Hack Saws, Both Stationary and Portable

Cap. 4"x4"

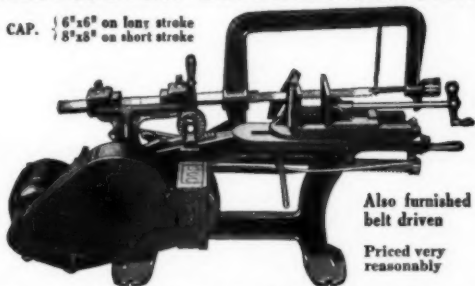


The Marvel No. 1

is portable, and is furnished all ready to run. Take it anywhere in your shop or plant, attach to a light socket, and go ahead with the work. An automatic stop is provided. Very reasonable price. Also furnished belt driven.

Marvel Draw-Cut Hack Saw No. 2

CAP. { 6"x6" on long stroke
 { 8"x8" on short stroke



Also furnished
belt driven

Priced very
reasonably

This general-purpose Saw is substantial, smooth-running and of good capacity. Furnished either with motor for a power circuit as a stationary machine, or with motor for an electric light circuit so it may be moved around, ready for use when cord is attached to a light socket. Motor is connected to driving crankshaft by silent chain, sprockets and intermediate cut gears enclosed in cast iron housing and guard and run in oil. Circulars and prices on request.

Armstrong-Blum Mfg. Co.

341 N. Francisco Ave.,

CHICAGO, ILL.

The Only Difference

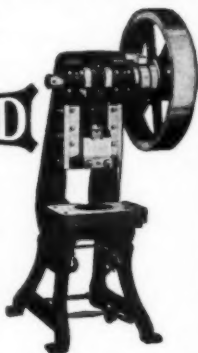
is not just price. The big thing is **service**. An investigation of the merits of

HIGH DUTY
ROCKFORD
PUNCH PRESSES

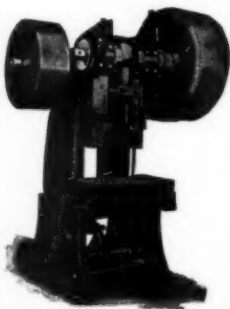
will give you a new idea of what you should get in punch press service. Definite, dependable reliability under all working conditions.

Write today for complete construction details.

Rockford Iron Works
ROCKFORD, ILL.



A Quality Inclinable Press Backed by a Real Guarantee

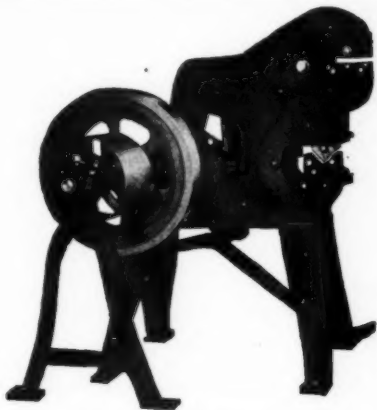


A Loshbough-Jordan Press cannot be overloaded while operating within its rated speed. Any shaft or frame broken under these conditions and within year of purchase will be replaced gratis.

Many features for convenience and safety of operator; long, satisfactory service; quality and volume of output excellent.

*Let us tell you about them
—or better, let us send a
press on 30 days' trial.*

**Loshbough-Jordan
Tool & Machine Co.**
Elkhart, Ind.



No. 52—Built in Seven Sizes
BELOIT
Combined Power Punches and Shears
Series 51 to 56

The Beloit Combined Power Punches & Shears offer an unequalled combination of simplicity of design, construction, range of capacity, and moderate initial cost.

Invaluable in any plant for punching, shearing and fabricating steel bars or structurals.

An indispensable equipment for the manufacture of automobile springs and bumpers.

Tell us about your Punching and Shearing requirements. Our line is extensive, and we have a Beloit Machine for your work.

Send for our new catalogue No. 11 which describes the Beloit line of Punches, Shears and Bending Rolls.

Hendley & Whittemore Co.
100 S. State St., :: :: BELOIT, WIS.

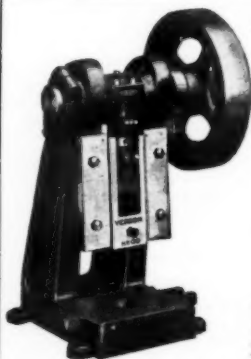
SOMETHING NEW



**Hand Power Presses, Shears, Notchers,
Punches and Dies, Etc.**

Write for Booklet

J.F. Kidder Mfg. Co., Burlington, Vt.



Trade **Verson** Mark

Is a symbol of
QUALITY

When found on
**Power Presses
Arbor Presses
and
Angle Shears**

Manufactured by

**La Salle
Machine Works**

3013 S. La Salle St., Chicago, Ill.

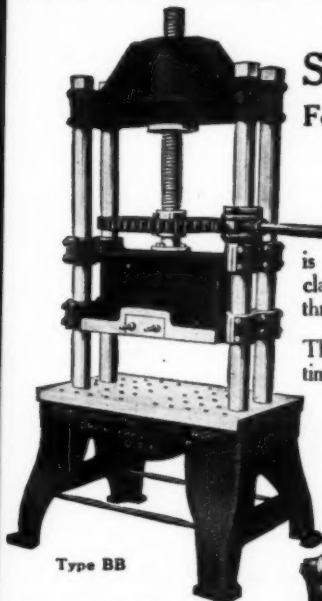
ASK ANY MACHINERY DEALER

Or write for Circular

Two Real Cost Reducers—

A Four-Post Screw Press For Die Makers

Capacity, 80 tons
Table, 20"x36"



Type BB

This extremely rigid press is made for a heavier class of work than our three smaller sizes.

They all save hours of time in fitting dies. *One man does the work.* Affords perfect alignment between punch and die.

And the other—a Surface Grinder

Powerful—rigid—accurate—no vibration—no noise—a revelation in quiet efficiency. Graduated feeds.

Details and prices for a postal

**JARECKI MACHINE
AND TOOL CO.**

Successor to Manhattan Machine & Tool Works
Dept. A. GRAND RAPIDS, MICH.





Style "WC"



Style "O"



The Hinge



Style "G"



Style "A"

Gits Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing.

Wire Wick Feed—gives desired prolonged feed.

Wire Wick—replaces waste or felt.

Made in Standard sizes.



Style "L"

Write for Catalog No. 20

Showing 255 full size illustrations with detail dimensions.



Style "U"

GITS OIL CUPS

Oil cups for every lubricating need. State style and size in which you are interested, and we will send free samples and catalog.



Style "T"

GITS BROS. MFG. CO
1940 SO. KILBOURN AVE., CHICAGO



Nos. 1, 2 & 5

When All Is Said

and done, you cannot beat our line of tools for cutting sheet, bar or round rods in iron or mild steels.

You can use our line of

Hercules' Shears and Rod Cutters

For cutting card, straw and fibre boards, brass and copper, gold and silver sheets, and hard rubber compositions.

Catalog No. 2 on request.

W. C. & F. C. TUCKER
HARTFORD, CONN.



Plain Shears Nos. 3 & 4

Screw Driving At a Saving of 65 to 85 Per Cent



The illustration shows the **Magazine Feed** of the Reynolds Automatic Screw Driving Machine.

Dump a gross or more of wood or machine screws into the hopper, press a foot lever (hands left free), and the screw is driven in an instant to any required depth.

It saves 65 to 85 per cent of the cost of driving screws in any other way, and insures uniform machine-made work.

Tell us the dimensions over all of your work, and the gauge and length of screws used, and we'll tell you what the "Reynolds" will do for you.

The Reynolds Machine Company

Dept. H. H.,

:-:

Massillon, Ohio



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

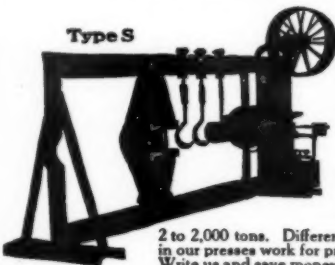
*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Used in the Biggest Plants

Lourie Hydraulic Presses



We have, or can make for you, just what you need in Hydraulic, Power or Arbor Presses.

They are quick acting, powerful, money-saving equipment—built from

2 to 2,000 tons. Differential Pumps used in our presses work for production speed. Write us and save money.

Lourie Mfg. Co., Springfield, Ill.



DUST—

from

- Sand Blasts
- Emery Wheels
- Tumbling Mills
- Polishing Wheels

etc., etc., etc.,

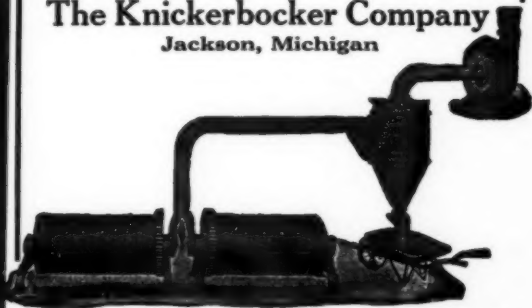
—including all kinds of heavy, flinty, gritty, grinding and cutting dust, is removed most efficiently and economically by the old reliable

“Rarefied” Dust Collector

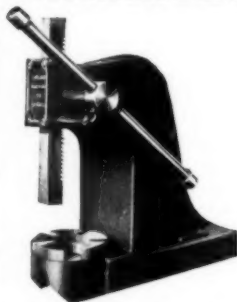
Operated on the “rarefied” or partial vacuum principle, the air is *drawn* thru Collector, and the dust is removed before the air reaches the fan. The “Knickerbocker way” not only collects 100% of the dust, but it often uses 40% less power, and keeps repairs down to next to nothing.

Let us send you a copy of our explanatory booklet, and a partial list of prominent, satisfied users.

The Knickerbocker Company
Jackson, Michigan



Sheldon Arbor Presses



Semi-Steel Frames.

Alloy-Steel Rams and Pinions. Heat Treated.

Large Stub Teeth.

Square Rams, carefully fitted, insuring proper alignment.

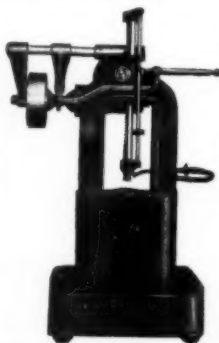
Ask for complete catalogue and price list

SHELDON MACHINE COMPANY

403 East 29th Street,

CHICAGO, ILL.

A HIGHLY EFFICIENT Broaching and Assembling Press



For an efficient, handy, reliable Broaching and Assembling Press, sold at a moderate price, there's nothing better than the —

18" American Vertical

It exerts a pressure up to 6 to 8 tons, has a maximum stroke of 18", and takes floor space of only 4½ ft. square.

Ask us about it

**American Broach
and Machine Co.**

Ann Arbor,

Michigan

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

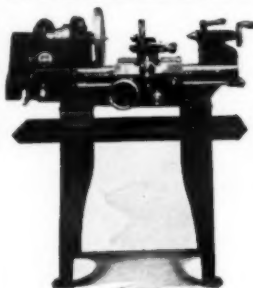
Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

**Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.**

Monarch Jr. Lathes



are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.

206 Oak Street, Sidney, Ohio

SEBASTIAN—



15" Geared Head Lathe
Single Pulley Drive
Without Motor
\$765

The knowledge, experience and skill derived from almost forty years of exclusive lathe building, has made *Sebastian* Lathes the standard of **QUALITY** in the medium priced lathe field.

Designed Right—Built Right—Priced Right and Guaranteed Correct

Write for details on our new Gold Seal Lathes

The Sebastian Lathe Company

1000 Culvert St.,

Cincinnati, O., U. S. A.



If you ever ran a lathe it has surely happened to you. It continues to happen daily in almost all shops.

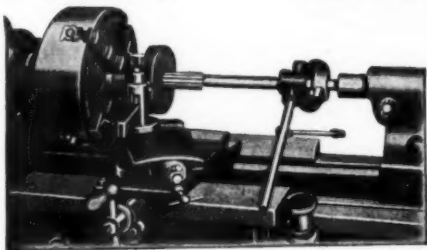
Until the Nicholson Reamer Holder was invented there was no other method by which a mechanic could keep his reamer from jumping in, or prevent it from reaming a tapered hole. This Holder can also be used instead of a chuck for drills and as a hold back in a lathe. It has many uses and saves double its cost in a short time. No. 1 size takes straight shank reamers and drills up to 1" dia., and No. 2 takes up to 2" in dia.

Send us sketch of socket or number of Morse taper of lathe you would like to try one on, and we will send it on trial. If you desire further information and circular, write us.

W. H. Nicholson & Company

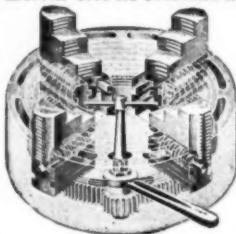
117 Oregon Street,

Wilkes-Barre, Pa.



EVERY DAY

Machine shop men are reducing their equipment costs by using WESTCOTT'S SPUR GEARED SCROLL COMBINATION LATHE CHUCK (illustrated herewith) the full swing of the



lathe, instead of using an Independent chuck and a smaller Universal, because

This Chuck is both Universal and Independent at any position of the jaws, which are REVERSIBLE.



May we send our complete catalog?

Westcott Chuck Company

(Originators of the Combination Chuck)

Lock Drawer "P"

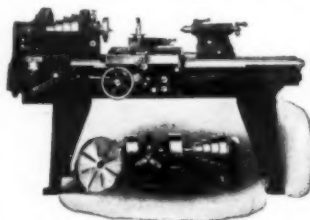
Oneida, N. Y.

Manufacturers of chucks for lathes and drills since 1873

A. V. Carroll Lathes

Have patented invisible gap without extra cost

Made in sizes 12", 14", 16", 18" and 20"

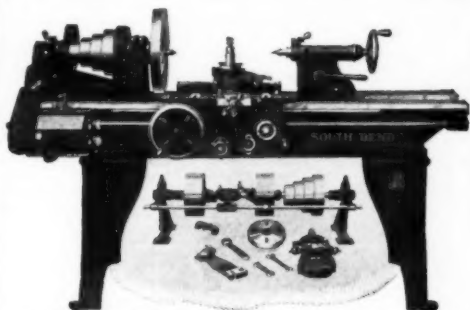


High quality at the lowest possible cost to you.

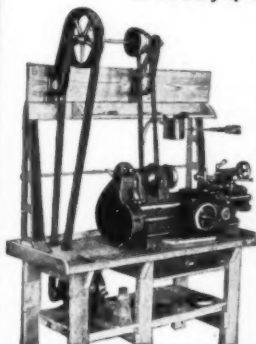
Easy payment plan if desired.

Write for circular, and let us show you a big saving

A. V. Carroll Machine Tool Co., Norwood, Cincinnati, O.



16'x8' South Bend Quick Change Gear Lathe
Price, \$498.00



11'x3 1/2' Bench Lathe Unit
 Complete with D. C. Motor, \$315.50

EASY PAYMENT PLAN

Our Easy Payment Plan allows you to install a South Bend Lathe in your shop, by making one payment with the order; the balance to be paid month by month, the amount depending upon the size of the Lathe.

South Bend Lathes are made in all sizes from 9" to 24" swing, and bed lengths from 2 1/2' to 16'.

Write today for Catalog No. 82 which describes our Easy Payment Plan. Mention size lathe desired.

South Bend Lathe Works
 521 East Madison Street
 SOUTH BEND, IND., U. S. A.

SOUTH BEND LATHES

— 31,000 IN USE —

We Can Show You!

That it is absolute folly to invest in large and expensive machines for any work within the large capacity of the "ARTISAN" Lathe, because hundreds of them are now proving their unsur-



passed value to the Service-Station, Repair-shop, Laboratory, Pattern-shop, Manufacturer, Trade-school.

Graduated Compound
Quick-Change Gears
8:224 Thread Range
11" Swing Over Bed
16" Swing Over Gap
24" Between Centers
1-5/16" Hole Thru Spindle

*If your dealer cannot demonstrate,
write today to—*

Artisan Mfg. Co., STATION 'N'
CINCINNATI, O.

E-Z THREAD DIAL E-Z



Kind of thread on
lead screw

Square Acme V
☐ ☐ ☐

Right Hand.....☐

Left Hand.....☐

Number threads per inch ☐

Give distance from
top of carriage to
center of lead screw

()

*Send for one on thirty
days' trial.*

List Price \$14.00

**JAMES M. COLVEN, 20 Wolfe Street,
Yonkers, N. Y.**

The Nicholson Patented
Expanding Mandrels
Are Saving Lots of Money



Strong! Rigid! Accurate!

YOU LOSE no valuable time, nor is a job delayed, when a set of Nicholson's Mandrels are available. Compared to these up-to-date tools, solid mandrels are an expensive make-shift.

Nicholson Expanding Mandrels come in sets of nine, with two or three sets of jaws for each. And *one set* will cover the *entire* range between one-half and seven inches, inclusive. In other words, at least one of these mandrels will take absolutely *any* hole, no matter what it is, between these two dimensions, without calipering or guess work, and the nine will replace *all* the solid mandrels.

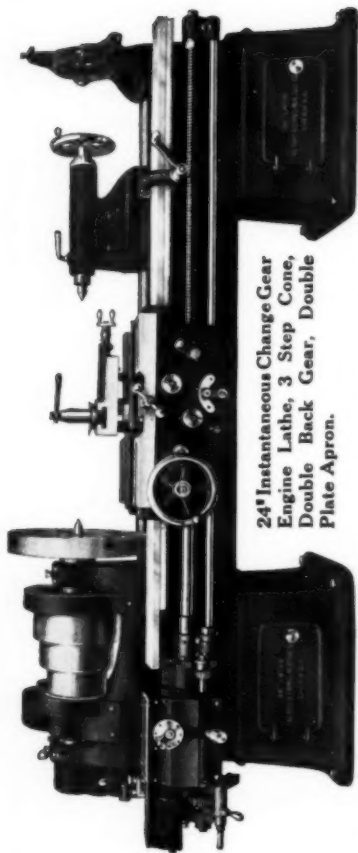
They are adaptable to work of the most varied nature. They save time and labor out of all proportion to their moderate cost.

*Write today for the instructive Booklet
and our 30-day trial offer*

W. H. Nicholson & Company

117 Oregon Street,

Wilkes-Barre, Pa.



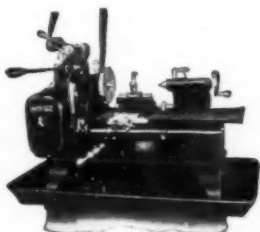
**24" Instantaneous Change Gear
Engine Lathe, 3 Step Cone,
Double Back Gear, Double
Plate Apron.**

We have a few of this pattern left, which on account of discontinuing Cone Driven Type of Lathes, we are offering at the following special prices, NET, f. o. b. Cincinnati:

24"x12" Compound Rest.....	\$1500.00
Extra 2' Bed.....	115.00
Taper Attachment.....	200.00

**THE BOYE & EMMES MACHINE TOOL COMPANY, 2245 Spring Grove Ave.,
CINCINNATI, OHIO**

"Production Getters"
—is what Chevrolet Motors call



PORTER-CABLE

Rapidcut Lathes

Designed for the
rapid production
of duplicate parts.
Less floor space.
Multiple tooling.

Write us

Porter-Cable Machine Co.

Syracuse, N. Y.

**We carry in stock ALL SIZES of Collets for
ALL MAKES of Lathes, at reasonable prices**



Hardinge Standardized

Draw-in Chucks or Collets

For Bench Lathes, Engine Lathes, Tool Room Lathes,
Bench Type Milling Machines, also Collets for Screw
Machines. Order where you can get reliable tools
at the right price from a reliable source of supply.

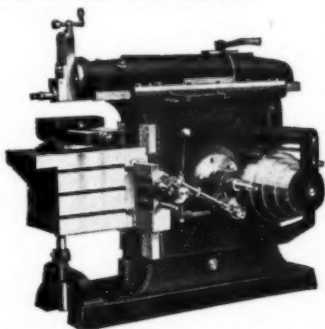
*Tell us make and swing of lathe—we'll do the rest
Also better have our Price List on hand for reference*

HARDINGE BROS., Inc., 1770 Berteau Av. CHICAGO, ILL.

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

32" Back
Geared
Crank, Sin-
gle Pulley
Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.

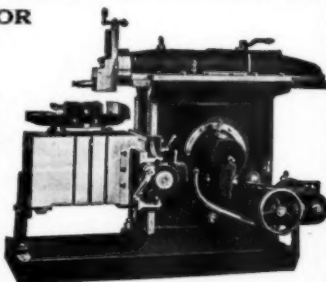
COLUMBIA SHAPERS

**SUPERIOR
HEAVY
DUTY**

Columns are without
overhang in front,
allowing longer trav-
erse of ram on angular
cuts. Are extended
at rear to afford long
bearing for ram.

SIX SIZES
16"-20"-24"
28"-32"-36"

*Bulletin No. 7 giving
full details sent free
on request.*



Cone, Single Pulley and Motor Drive

THE COLUMBIA MACHINE TOOL CO., HAMILTON, O.

Manning, Maxwell & Moore, Inc., Selling Agents, New York City and Branches



Maximum Economy In Machining Small Work

Shaper
Stroke
7 in.



Slotter
Stroke
3½ in.

The Rhodes Combined Shaper and Slotter is exceptionally economical on small work, because—

It costs less to buy than larger machines;

It does, within its size limits, everything they can do;

It does the same work quicker, being more easily and rapidly handled;

The cost of maintenance and operation is substantially less than that of any tool that will accomplish the same results.

*Ask your dealer or write for
CATALOG H22*

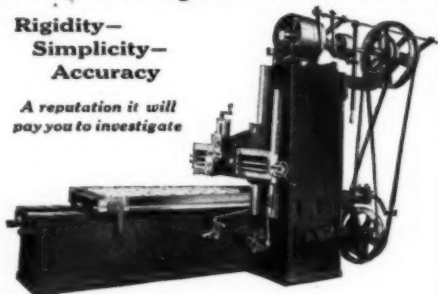
The Rhodes Mfg. Company
948 Park Road, Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

Cleveland Open Side Planers

**Rigidity—
Simplicity—
Accuracy**

*A reputation it will
pay you to investigate*



The Cleveland Planer Co.

3148 Superior Ave., (Est. 1900) Cleveland, Ohio

Stools We Sold 15 Years Ago Still Giving Good Service

The first stools we sold, 15 years ago, are giving good service today. We may never know how much longer they will last—life is too short.

“Square Circle” Stools

are as comfortable and satisfactory in every way as they are durable. Concave backs on spring steel posts, concave seats of 1" hardwood, feet that don't scratch the floor, etc., etc. With and without backs, in many styles.

Descriptive Catalog and Prices ?

**Kalamazoo
Steel Goods Company**

408 E. Ransom St., Kalamazoo, Mich.



Style No. 102

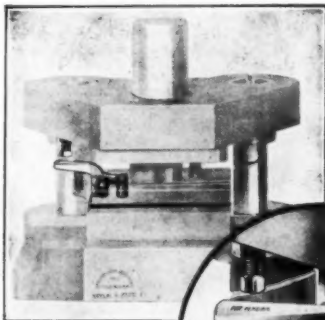
DANLY Pace Maker

(A Danly Product)

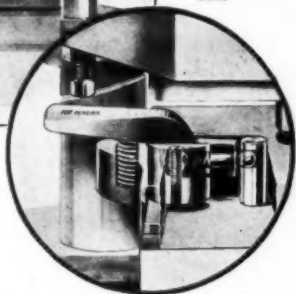
can be applied to all dies
and die sets

\$1.50

Pays for Itself in a Day



*Simple
Rugged
Accurate
Long lived
Automatic
Easily applied*



WHAT IT DOES

1. Speeds production;
2. Reduces waste of material;
3. Eliminates spoilage due to carelessness and poor judgment;
4. Lessens human fatigue;
5. Affords universal basis for rate studies and piece work;
6. Removes dependence upon human skill.

[*Send for trial auto-gage
and drill jig.*]

Danly Machine Specialties, Inc.
4913 Lincoln Ave., Chicago, Ill.

Model "25"

In a
Leather Case
with
Universal
Attachments

**Only
\$10.**



FEDERAL Dial Indicator

Adjusts instantly to any desired position on a surface or height gauge; also for checking lathe, miller, grinder, shaper or planer work.

Send for our complete catalog of Dial Indicators, Cylinder Gauges, Comparators, Thickness Gauges, Piston Gauges, Rubber Gauges, Piston Pin Gauges, Fabric Gauges, Paper Gauges, Wire Gauges, Piston Ring Gauges, Thread Lead Gauges.

Federal Products Corporation

On a Surface Gauge Elbow & Chestnut Sts., Providence, R. I.

Compact—Sensitive—Accurate—Durable

The "ATLAS JUNIOR" INDICATOR

Reads over a range of 0.055"—at a glance. Dial may be set at zero after adjusting to work. Contact point can be locked in position for inspecting. Keep it in your pocket and use it anywhere. Details?

PRICE \$7.50



Sold by Dealers or Direct

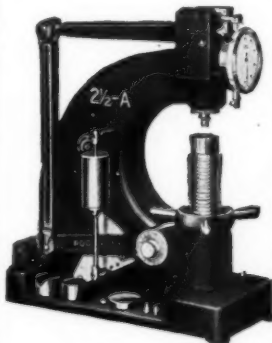
WALLACE BROS.

160 N. Wells St., Dept. B.B. CHICAGO, ILL.



The **ROCKWELL** *Direct Reading* **Hardness Tester**

For testing hardness of tools, dies, strip metal, rod, odd shapes, and thick and thin metal of all kinds—testing a greater variety than any other tester. Quick, convenient, and the most practical for inspection testing. Rugged yet highly sensitive, with diamond cone penetrator for hard steel and 1/16" ball penetrator for softer material. Precise and consistent and therefore the best for research testing, permitting the same hardness scale to be used in both laboratory and shop. Makes a minute impression, and the tester itself measures that impression and instantly indicates the Rockwell Hardness number on the gauge.



*Used in over 700
plants in the U. S. A.
including—*

American Steel & Wire Co.
Brown & Sharpe Mfg. Co.
Burroughs Adding Machine
Company
Denver Rock Drill Company
E. C. Atkins & Company
Ford—several plants
General Electric Company
General Motors Company
Link Belt Company
Pacific Gear & Tool Works
Pratt & Whitney
Western Electric Company
Westinghouse Electric & Mfg.
Company
S. S. White Dental Co.

WILSON-MAEULEN COMPANY INC

Makers of Pyrometers and Hardness Testers

St. Mary's St. & Concord Ave., New York City

**"Yessir, Handiest Tool in the Shop,
and the *Savingest*"**



— said the Superintendent,
"A one-man machine that
will save the time of 6 to 10
workmen, as well as money,
temper, and bruises."

**The CanTon Crane,
Hoist and Truck—**

enables one man to lift cast-
ings and all heavy pieces up
to 6,000 lbs., and move them
anywhere. Several sizes—but
they are all big in economy.

Write for Booklet E-8

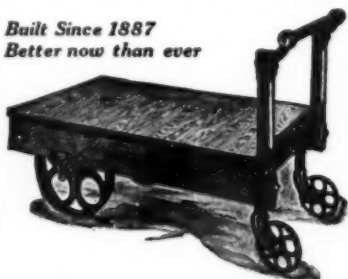
Canton Foundry and Machine Co.

Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

A Profit of 500% a Year

*Built Since 1887
Better now than ever*



**TOWSLEY
TRUCKS**

Are made in
every style
for every
need. Ef-
ficiency ex-
perts say
they pay for
themselves
every two or
three months.

Write us for details of big truck profits

John T. Towsley Mfg. Co., Cincinnati, Ohio

Tribloc Hoists

(SPUR GEAR)

Almost Unbreakable



All parts are made
of Drop Forged Steel
and Malleable Iron.

Capacities from $\frac{1}{4}$ to
20 Tons.

We also build a
complete line of
I-beam Travellers,
Screw Hoists and
Differential Hoists.

*Write for
Catalogue 5A*

**Ford
Chain Block
Co.**

PHILADELPHIA

Builders of Better Hoists

NO EQUAL VALUABLE

One must be had to appreciate it. Long length holes and other difficult jobs of Keyseating are done with this Keyseater. The tool is chucked like a drill in the drill press.

Catalog O tells you

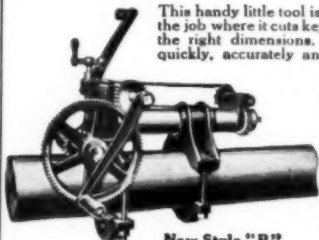
National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



A Strong Portable Key-Way Cutter



New Style "B"

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly, accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.

Style "B" has six milling cutters and cuts keyways from $\frac{1}{4}$ " to 2" wide, in shafting 2" to 8" in diam. and 12" long without resetting.

Write for prices and literature illustrating and describing several models, including motor driven machines.

THE BUCHER-SMITH CO.
East Liverpool, Ohio

Keyseats in Shop or Ship Yard

Are Cut Quickest with a Catlin

Having less than half the number of parts of other keyseaters, it is a simple machine to operate, and ordinary help easily runs it at top speed.



The picture shows the size that takes care of the needs of most machine shops. The stroke is adjustable up to 13", and it cuts keyseats from 1/16" to 1 1/2". Our other sizes will do all the keyseating that may come up in any shop or ship yard.

Catlins make new records every day — on some classes of work it is possible to keyseat piece after piece without clamping down the work, or stopping the machine.

Here's a time and labor saver that helps to reduce shop costs. We shall be glad to send you full description, showing capacities of the various sizes.

Drop us a line today

Chattanooga Machinery Company

2401 Bennett Ave., Chattanooga, Tenn.



T. H. L. Punches

Insure Continuous and Profitable Production

Because they are made of the right quality of tool steel.

Because they are hardened with every care.

Because all our experience of 33 years is centered in making them accurate, rugged and dependable.



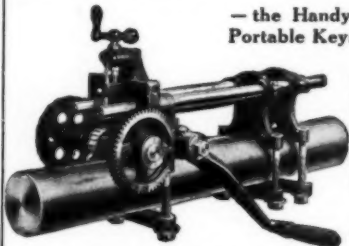
*Large stock of regular sizes
Special sizes quickly made*

T. H. Lewthwaite Machine Co.

417 East 31st St., (Est. 1890) New York City

So Valuable in Emergencies

**— the Handy Burr
Portable Keyseater**



You may not need it just now, but the emergency can come at any time when you would gladly give 10 times its cost to have a "Burr" at your disposal.

Cuts accurate keyways up to 12" long any-
where, in any position, in shafts up to 5" diam. Eliminates dis-
mantling. Operates by hand or power. Choice of seven sizes.

Over 9,000 in use today—order yours now!

JOHN T. BURR & SON

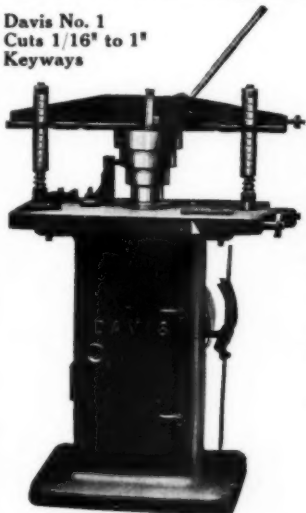
422 Kent Ave., Brooklyn, N. Y.

Rapid Production

guaranteed when you use

Davis Keyseaters

**Davis No. 1
Cuts 1/16" to 1"
Keyways**



For cutting
keyways in
pulleys,
gear blanks,
bell cranks,
crank handles,
etc., etc.,
and for
slotting,
oil grooving
and work
of similar
character

Cutting Keyway in Cone Pulley

THE RAPID PRODUCTION of Davis Keyseaters of course insures a high degree of economy. They are very simply constructed, without complicated parts, and are easily operated by any bright boy. They meet every requirement of a manufacturing machine, on either large or small lots. Can equip for motor drive. Complete information gladly furnished upon request.

Davis Keyseater Company

255½ Mill Street,

Rochester, N. Y., U. S. A.

Single Unit Heat-Treating Furnaces

Forge, Semi-Muffle, Full Muffle
and Combination Types



Furnaces for annealing, carbonizing, melting, hardening and tempering; in a full range of sizes to meet the needs of the small tool room or machine shop, as well as the largest manufacturing plant.

*Ask the man who uses one;
if you don't know him, ask us*

A. B. KIDDER, 1104 5th St., N. E. CANTON, O.

POWELL BLOW GUN

Designed to dispense air with utmost economy.

Used for cleaning machines, machine tools and work benches.



Made with different tips for special requirements.

Circular on request.

The Wm. Powell Co.

2525 Spring Grove Ave.,

Cincinnati, O.

"WHITNEY"

Silent Chain Drives



"WHITNEY SILENT CHAIN DRIVES"
are positive, yet flexible. They operate on
very short centers and deliver practically
every ounce of power to the driven shaft.

Let us fit the drive to the job

THE WHITNEY MFG. CO., - HARTFORD, CONN.

NEW YORK
L. C. Biglow & Co., Inc.
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BOSTON
George C. Steil
727-A Boylston St.

PHILADELPHIA
R. J. Howison
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PITTSBURGH
Pittsburgh Gear & Mch. Co.
27th & Smallman Sts.

SYRACUSE, N. Y.
George McPherson
201 Norwood Ave.

SAN FRANCISCO
A. H. Coates Co.
615 Howard St.

SEATTLE, A. H. Coates Co., 1115 E. Union St.

Vanderbeek Giant Joints



Efficient to
an angle of
45 degrees

Vanderbeek
Universal
Ball Joints

Tested by Time

Used by U. S. Gov't. and Best Shops

These joints are entirely enclosed against dirt, are self-oiling, have all wearing contacts of hardened steel of large diameters, and designed for the most severe strain.

American Tool Works, Inc.
Hartford, Conn.



"Borgeson Universal Joints"

**Are you a user of Universal Joints?
If so!**

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$,
 $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, 2 $\frac{3}{4}$.

Should you require Special Universal Joints, be sure to write for quotation.

*Complete description gladly
furnished upon request*

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

NATCO

Universal Joints



The interchangeable method of manufacture of NATCO Universal Joints permits repair parts replacement to overcome natural wear. Complete replacement is very seldom necessary.

Manufactured in the following sizes—
 $\frac{3}{4}$ "—1"—1 $\frac{1}{4}$ "—1 $\frac{1}{2}$ "—2"

*Descriptive Bulletin will be
sent on request.*

National Automatic Tool Co.
Richmond, Indiana

The D. S. West Drilling Vise



Nothing else like it. Both strong and light, with 8" jaws and 8" opening. Holds round, flat, square and irregular shapes better than other vises. *Full description on request.*

Armstrong Manufacturing Co. Portland, Oregon

The BARKER GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines



Steel faced jaws

*Graduated to swivel
any angle*

*Extra heavy for
hard usage*

The screw runs through entire length of vise, with bearing on each end. Nut at rear equalizes strain. Sizes 8" and 12" General Purpose and 16" Mold Makers' Vise. Sturdily built, and so exceptionally handy that users would not part with them. Be sure to get our literature and prices before buying.

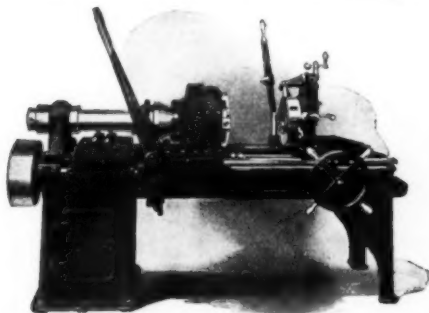
WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

We Invite You—

To Write Us About Pipe Threading



No. 2 PDQC—Threading & Cutting Off—Cap. $\frac{1}{4}$ " to 2"—Belt Drive

We can assist to reduce your costs—by recommending the machine best fitted to do your work. B & Ks are built in 17 styles and sizes, and one of them will surely do your pipe threading in the most economical way.

B & Ks are now recognized everywhere as standard. There's more than 40 years of manufacturing experience behind the machines of today. They are supreme in convenience, in accuracy, in dependability and large daily output, whether used on small jobs or big runs. They thread pipe from $\frac{1}{4}$ to 18 inches in diameter.

We repeat—we invite you. Write us or our agents.

Bignall & Keeler Machine Works Edwardsville, Illinois

Sales Agents: Manning, Maxwell & Moore, New York, N. Y.

Chicago
Buffalo

Boston
Detroit

St. Louis
Syracuse

Pittsburgh
Atlanta

Cleveland
San Francisco

Philadelphia
Seattle



Drill Press Attachment FOR Driving Screws and Nuts Several Sizes

Manufactured By
N. A. Strand & Co.
CHICAGO
5001 North
Lincoln
Street

Drive
Them Down
by Power



You Break Taps, Don't You?

Then You Need the "WALTON"

It removes broken taps



without injury to threads

If you break taps occasionally, you should have on hand the Walton Tap Extractor as a matter of course. It quickly removes the pieces below the surface without injury to threads. A big saver of time and material for its small cost. Sizes No. 8 to 1 1/4".

Sixty days' approval. Did you say "Ship"?

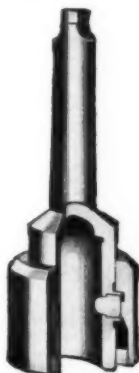
THE WALTON CO., Hartford, Conn.

APEX

FOOL PROOF

Quick Change Drill Chucks

**Require
Very
Little
Attention**



**And
Give a
World Of
Service**

Pat. Pend.

—:CAPACITIES:—

Straight Shank Drill Collets 0 to $\frac{3}{4}$ "

Morse Taper Drill Collets 0 to No. 5

Tap Collets 0 to 2"

Operates Successfully At High Speed

Write for Bulletin No. 20

The Apex Machine Co.
Dayton, Ohio



Tap in Safety!

Your tap breaking troubles—and expense—are over when you begin to use the dependable

Woodstock Improved Safety Tapping Chuck

Tap is automatically released the instant it binds or touches bottom. Not only prevents tap breakage, but it saves lots of valuable time. Making good in government shops and big auto plants.

Made in Five Sizes

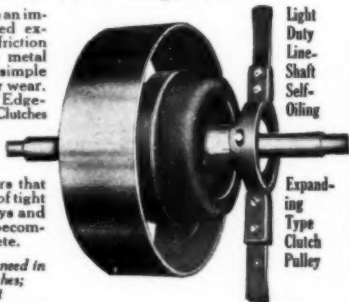
*Let us send you one to try out on
your most difficult work*

Peter Bros. Mfg. Co., 115 Railroad St.
ALCONQUIN, ILL.

Edgemont Friction Clutches For All Purposes

This clutch has an improved patented expanding type friction with metal to metal contact, with simple adjustments for wear. The value of "Edgemont" Friction Clutches on line shaft has been so universally acknowledged by mill operators that the old system of tight and loose pulleys and belt shifting is becoming quite obsolete.

*Tell us what you need in
Friction Clutches;
we have it*



Light
Duty
Line-
Shaft
Self-
Oiling

Expanding
Type
Clutch
Pulley

Edgemont Machine Co., Inc., DAYTON,
OHIO

A Better Collapsible Tap

THE R-S

Capacity 1" and up

This rugged, serviceable device is the result of long experience in the development, design and manufacture of threading tools. We offer it as a companion tool to the famous R-S (Boehm) Automatic Die-Head.



It has more than made good in every shop in which it has been used.

It is *positive* in action, so that *it will always collapse* at the desired point without dependence upon any kind of spring action. A movement of the knurled ring one full graduation varies diameter of cutting points *one-half of one-thousandth* of an inch, from which it is obvious that adjustments may be made infinitely close. It is chip proof.

Better have complete data—the pleasure will be ours, but most of the profit will be yours

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

Send Us Sample of Work to be Riveted



Send us a sample of your most difficult work. If the riveting to be done is where no other machine will reach, so much the better. We will rivet it for you on a—

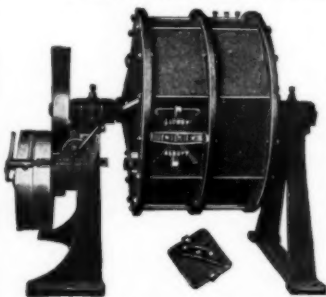
Grant Rotary Riveter

—and return it to you. You can see for yourself the quality of work—highly polished heads, with no hammer or tool marks—and we'll tell you how quickly it can be done and the cost. You may find it well worth the trouble.

You send sample; we'll do the rest

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

The Abbott Burnishing Barrel And Carbonized Steel Ball Process



Burnishes small metal parts perfectly at a saving of 75 to 99 per cent.

Lately equipped with new features—gear guards, belt shifter, etc.—which make it still better. Strainer cover if desired.

*Want prices
and
description?*

The Abbott Ball Company
Elmwood District, Hartford, Conn.

TAPPING

1800 Holes per Hour



The manufacturer of this Electric Lamp guard is tapping the No. 6-32 hole in these steel stampings 1800 pieces per hour.

Are you getting as good production on the tapping of your small holes? If not, it will pay you to ask us about the

Leland-Gifford High Speed Tapping Machine

which is doing the work.

Leland-Gifford Co.
Worcester, Mass., U. S. A.





Ball Bearing Drills Plain Bearing Drills

Foot Lever Feed can be applied to any of our SINGLE SPINDLE Drills

REED DRILLS are the result of our experience of 35 years in making good tools. Every detail has been carefully worked out to insure durability and efficiency—to make them exceptional producers.

Ask for prices; they will interest you

Francis Reed Co.

43 Hammond St.
WORCESTER, MASS.

The "Utility" Interchangeable Counterbore and Spot Facer



With the Pilot

that can't twist off

Eliminates broken pilots and cutters. No trouble in removing cutters from holder or with set screws coming loose. Cutter drive is simple and powerful. The holder is scientifically ground and heat-treated; cutters are high speed steel, scientifically tempered. Unrivalled for dependability, accuracy and economy. Write for the Catalog.

The J. C. Glenzer Company

6469 Epworth Blvd., Detroit, Mich.

The Taylor & Fenn Sensitive High-Speed Radial

**Belt or
Motor
Drive**



This great manufacturers' drill combines the speed of the sensitive with the flexibility of the radial, for practically all drilling requirements within its range. Drill the big pieces on the base and the small pieces on the table.

Tapping heads, power feed heads or hand lever feed heads may be used singly or in combination.

The drive is positive, through gears and silent chain. The spindle has three speeds and is bored for No. 2 Morse taper.

*A thorough investigation of this machine will repay you
We shall be glad to furnish complete data upon request*

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.



U.S. MULTIPLE SPINDLE Drill Heads

Made regularly with 2 to 6 adjustable spindles, to drill in any pattern. Special heads to order.

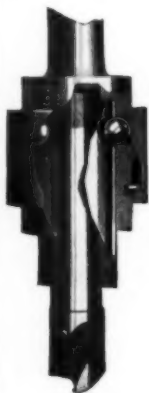
Also made with fixed spindles to fit your work.

Drills two or more holes with the same speeds and feeds that are used for drilling one.

Send us a layout of your work and we'll help to reduce your costs

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.



"Titan" Quick Change Drill Chuck

"It fills the bill"

Chucks, as a rule, have good features and bad features, but the "Titan" fills the bill to the complete satisfaction of users.

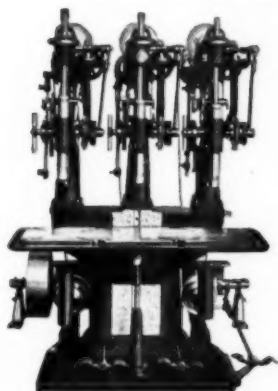
It has the good features of others, plus a real quick change. Just strike the end of drill, and out it comes. No separate key to get lost, no hammer or special device required. Operates in any position. Uses up drills with broken tangs. Saves time; cuts costs. Sizes No. 0 to No. 5.

Write for descriptive price list

Titan Tool Company
Erie, Penna.

ROCKFORD Drilling Equipment

Insures Rock-Bottom Shop Costs



The Rockford Automatic Gang Drilling Machine

"—superior in convenience, capacity and workmanship, a top-notch"

The Rockford appeals to superintendents—to all practical men who are responsible for results. As a producer it is second to none; as a high-class, dependable machine it gives joy (and profits) 'way above the average.

Automatic Return—When each spindle has completed its operation it automatically returns to its highest position, where it remains until the starting lever is tripped, when it immediately drops to position above the work.

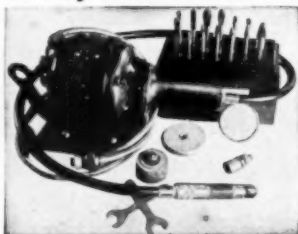
By Removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

Built with 2, 3, 4 and 6 Spindles—Box Column Type

Ask for Circular. Glad to answer questions.

Rockford Drilling Machine Co.
Rockford, Illinois

30-Day Offer ^{On} the Pattern Maker's Pal



Consisting of

1/4 h. p. Westinghouse motor
 No. 5x4' shaft
 No. 5x4' sheath
 Can of grease
 No. 5 handpiece with two wrenches
 Super service drop cord and switch
 14 Burs in block
 Grinding spindle
 3" Grinding wheel
 Sanding drum

Regular price of 110 volt, a. c., 3450 r. p. m. outfit is \$75. Our special 30-day offer at..... **\$63.**

Regular price of 110 volt, a. c., 1725 r. p. m. outfit is \$70. Our special 30-day offer at..... **\$60.**

Only 65 sets at these prices. First come, first served.

The Hergi Mfg. Co., 250 Fifth Street, Bridgeport, Conn.

Thor

ELECTRIC DRILLS

Rugged strength in every part



That's what you look for in a drill. In the *Thor* you'll find ball and roller bearings, double-silk-wound coils, Jacobs Chucks, and other parts of equally high standard. That's why they run smoothly for so many months without repairs.

78 Types to Pick From—3-16" to 2" capacity. Among them is the *Thor* qualified by hardy and apt construction for your work, no matter how uncommon it may be. Send for illustrated catalog.

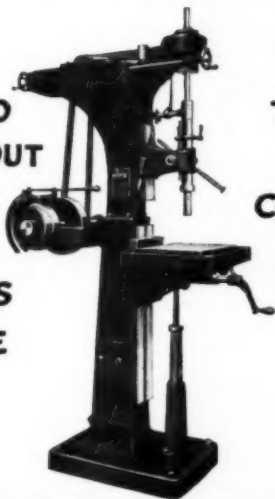
Independent Pneumatic Tool Company
 600 W. Jackson Blvd., Chicago, Ill.

\$

GET
THE
Avey

\$

TO DO
WITHOUT
AN
AVEY
COSTS
MORE



THAN
IT
COSTS
TO
BUY
IT

\$

THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

\$



Special Machinery

Contractors, Builders, and
Designers

C. H. Cowdrey Machine Works

Established 1875

Fitchburg, Mass.

Give Us A Trial

On your next order for Hollow
Bored Forgings and Steel Shafts

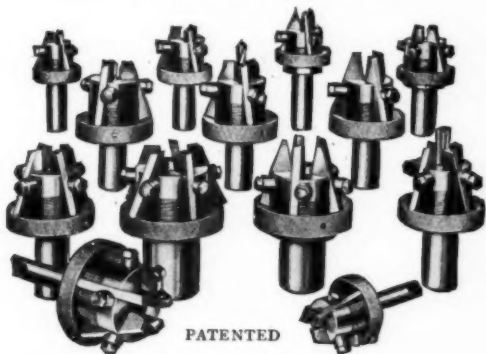


When it comes to furnishing such items as *Lathe Spindles, Piston Rods, Rams, Clutch Shafts*, etc., you will find us a reliable source of supply, with dependable products, prompt deliveries and the right prices. If there's anything you need now, send along your blue-prints and we'll take good care of you. Thank you.

American Hollow Boring Co.
Erie, Penna.

Genesee Hollow Mills

Have ADJUSTABLE, Renewable Blades



Ideal Tools for Finishing Castings, Forgings, Etc.

Adjustable—One set of blades is all that is required to machine all sizes within their capacity, to the thousandth of an inch.

Economical—One Genesee Hollow Mill covers the range of several non-adjustable mills, and one set of blades outlasts three to five solid tools and are replaceable at small cost. This makes them economical to buy. They cut up to 15" a minute in steel, or to the capacity of machine, making them economical in operation.

Accurate—They cannot change in size, even after repeated grindings, as solid tools do. This, with their close adjustability, insures 100% accuracy all the time. And they are stronger, better and more satisfactory in every way.

Glad to have you put your production problems up to us

Genesee Manufacturing Co., Inc.

Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools

Save Time Setting Gang Milling Cutters

Eliminate
Thin
Washers



Hardened
and
Ground

PATENTED

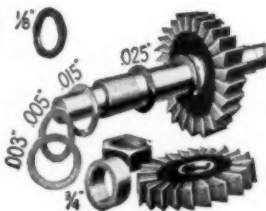
"Wear-Ever" Adjustable Spacing Collars
permit setting cutters to the thousandth part
of an inch without removing from the arbor.

*Stock sizes for $\frac{3}{4}$ " to $2\frac{1}{2}$ " arbors, sent on approval
They are adjustable in 12 steps of $2/1000$ inches*

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets CHICAGO, ILL.

Steel Spacing Washers—

Made of a good grade of Cold Rolled
Strip Steel, also known as Shim Steel



Stock sizes for arbors of
following diameters: $\frac{3}{8}$,
 $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$,
 $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, 1 $\frac{7}{8}$, 2,
 $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in.
and larger.

Stock thicknesses: .002,
.003, .004, .005, .006,
.007, .008, .010, .012,
.015, .020, .025, .032,
.047, .063, .093 and
.125 inch.

Other thicknesses up to
 3.000 " made to order, with
keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Burke Bench Millers

Are just real good machines, which are built to close limits, are well balanced, and accurate beyond criticism.

The No. 4 Machine shown here has longitudinal feed of 8 inches, a traverse feed of 3 inches and a vertical feed of 8 inches. Surface of table $3\frac{1}{2} \times 16$ inches. Can also be equipped with Index Centers, Vertical Milling Attachment, Slotting Attachment, Draw-in Chuck Attachment, and Vises (Plain or Swivel Base or Quick Acting). This machine should not be over-



\$220

looked on small milling operations. We build both power and hand feed machines at prices ranging from \$100 to \$220.

Burke 10-inch Sensitive Bench Drills

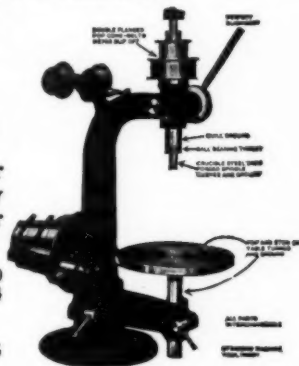
have been built for 20 years and they are better than ever

BELT DRIVEN

No. 0.....\$20
No. 1.....\$24

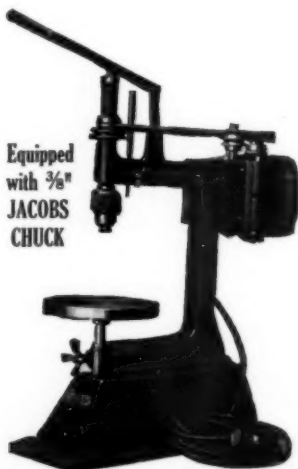
MOTOR DRIVEN

No. 1.....\$50 to \$55



The Burke Machine Tool Co.
297 East 16th Street, Conneaut, Ohio

Jacobs
Chucks



Equipped
with $\frac{3}{8}$ "
JACOBS
CHUCK

Boice-Crane

For Drilling

Motor-driven Ben-
economy. In mo-
as a necessary pa-

The Boice-Crane
example of tools
machine of made
2500 r. p. m. it c-
A $\frac{3}{8}$ " Jacobs chu-
excellent equi-ment

Upon request, call

W. B. & J. E. BOICE

*This advertisement is
in the interests of good Drilling
by the makers of the Jacobs*

Sound Drilling



-Crane Motor-Driven Bench Drill for Drilling Small Holes at High Speeds

Crane Motor-Driven Bench Drills have a place of their own in shop work. In most well organized shops they are regarded as an essential part of good equipment.

The Crane Drill, shown in the illustration, is a good example of tools of this class. It is a "precision-built" machine of modern design. With spindle speeds of 1000-1500 r.p.m. it drills small holes rapidly and accurately. The Jacobs Chuck is regularly furnished as a part of its standard equipment.

When complete specifications will be gladly sent by—

J. E. MOICE, 1730 Norwood Ave., TOLEDO, OHIO

*Advertisement is published in the
Drilling Equipment
the Jacobs Chuck*

and business is built on service



AUTO REPAIR SHOPS

**The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders**

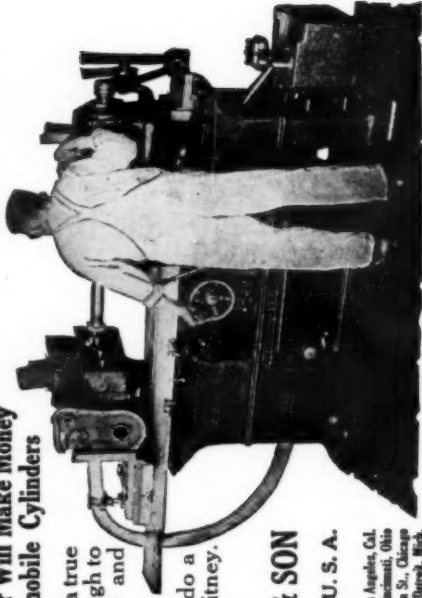
The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.

Write for new catalog

BAXTER D. WHITNEY & SON
Incorporated
WINCHENDON, MASS., U. S. A.

Selling Agents:

BERGER & CARTER CO., 470 E. Third St., Los Angeles, Cal.
E. A. KINSEY & CO., Indianapolis, Ind., and Cincinnati, Ohio
MARSHALL & HUSCHART MFG. CO., 17 So. Jefferson St., Chicago
CAVILLAC MACHINE CO., Benahm & E. Lafayette Sts., Detroit, Mich.



Webster & Perks
**GRINDING
MACHINES**

ABSOLUTELY NEW
Yet Priced to Compete with Used Tools

Universal machines combine tool room accuracy with great versatility, rigidity and power for quantity production. Plain machines handle either straight or taper grinding with extreme accuracy. All machines are brand new, and are given thorough inspection and test under belt before shipping. A real bargain at the price.

Send for Circular

Barber-Colman Company
Rockford, Ill., U. S. A.



Threading Tool



Right Hand Off-Set Side Tool



Right Hand Turning Tool

ARMSTRONG Tool Holders

They Save—

High speed steel, 90%

Grinding, ----- 70%

Forging, --- 100%

Over 100 tools for
Lathe, Planer, Shaper,
Slotter, etc.

Get the free Catalog



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

Whitney Straightening and Balancing Machine



Ball Bearing

It is not necessary to use any center to straighten a shaft. Just revolve it freely on the ball bearing rollers, find the crooked portion, and apply pressure with ball bearing screw. It is fully twice as fast as any similar machine made.

For balancing, move straightening head to one end, and use raising blocks to get required clearance.

Description and price ?

Whitney Metal Tool Co.

95 Forbes Street,

Rockford, Ill.



Type C-1 Tool

**More
Economical
than a
Diamond**

You will produce work at
infinitely less expense by
using the

**"Precision" Roughing
and Semi-Finishing
Wheel Truing Tool**

Not a substitute for the diamond, but built on
an entirely different principle, which is an im-
provement over the diamond in that it pro-
duces work equal or better than that of the
diamond, and at a greatly reduced cost.

**It will pay you to put Precision
Wheel Truing Tools to a test.**

Ask for descriptive booklet

**The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO**

Unsurpassed Universal



The Thompson
10"x36" Grinder
does high-grade

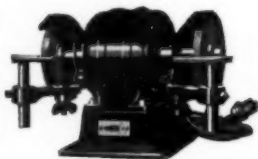
**Plain,
Surface,
Edge,
Die,
Cutter
and
Internal
Grinding**

—and is good
at all of them.

Write for Bulletin

Manufactured By
THE THOMPSON GRINDER CO., - Springfield, Ohio

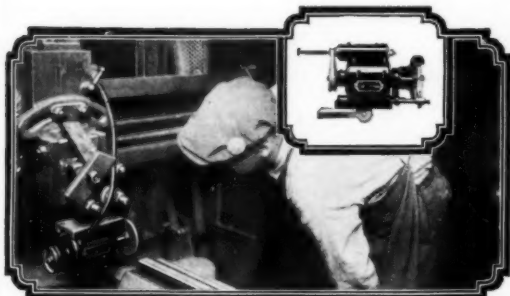
Equip Your Plant With Bodine Portable Electric Tool Grinders



A "Bodine" in
every department
of your plant
will save time
and insure better
cutting tools

In some plants this has been done to splendid advantage. It saves time to and from a centrally located machine, and the "Bodine" produces a much better cutting edge than a large floor-type grinder with coarser wheels. The "Bodine" has Norma precision ball bearings, heavy wheel guards, adjustable tool rests and dust-proof motor. Highest grade throughout.

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.



Helping Willys-Overland Take America Off Its Feet

IN THE Willys-Overland plant at Toledo, Dumore grinders play an important part. How well they fulfill every demand made of them—how accurate and adaptable they are for all varieties of grinding work, is convincingly illustrated in the hood panel forming—die grinding job pictured above. And when you consider that this is but one of many difficult operations successfully handled by Dumore grinders at the Willys-Overland works, you'll agree that these efficient tools assist materially in "taking America off its feet."

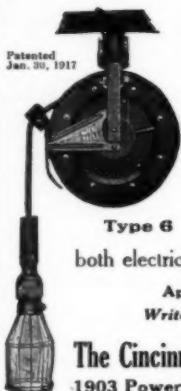
It is reasonable to assume that what Dumore grinders can do for Willys-Overland they can do for any other manufacturer. Six distinct styles of Dumore grinders, each with individual speed ranges, provide a grinder with the correct cutting speed for any grinding need. Dynamically balanced armatures and selected ball bearings in Dumore grinder motors eliminate vibration—permitting maintenance of grinding limits as close as .0001, without taper, bell-mouth or chatter marks. Operating on alternating or direct current, they are especially useful in shops supplied with two varieties of power current. Portable, they save the cost of tearing down expensive set-ups.

Why not find out what they can do for you? Our new catalog tells an interesting story of Dumore grinders and their uses. By asking for it *today* you'll get it quicker than by delaying until tomorrow. Write now!

Wisconsin Electric Co., 43 Sixteenth St., Racine, Wis.

DUMORE HIGH SPEED GRINDERS

Patented
Jan. 30, 1917



Type 6

both electric lamp and power extensions.

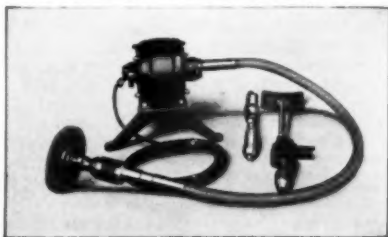
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Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

The Whirlwind Buffer and Grinder

**Will cut the cost on any unhandy
grinding or polishing job**



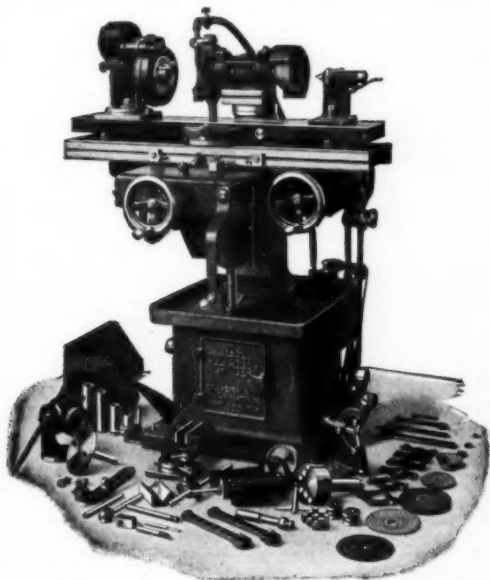
Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St., Philadelphia, Pa.
The Best Since 1876

Grand Rapids Universal Grinder

MOTOR DRIVEN

With All Overhead Works Eliminated



GRAND RAPIDS No. 3 & No. 4 Universal Grinders
are furnished either hand feed or power feed,
wet or dry, motor drive or belt drive.

CIRCULAR ON REQUEST

Gallmeyer & Livingston Co.
342 Straight Avenue, S. W.
GRAND RAPIDS, MICH.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds. No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

Made in six sizes, for balancing anything that turns on a shaft, up to 24,000 lbs. weight



Anderson Improved Balancing Ways

Spindles are hardened, glass hard, so they do not become indented or lose accuracy. Chilled iron discs; especially sensitive bearings.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code.....	Bed	Bed	Bed	Bed	Bed	

Any of above can be furnished with longer shafts

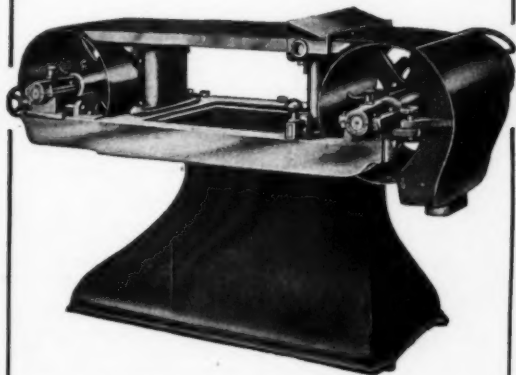
Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

PEERLESS SURFACING MACHINES

Will reduce grinding and finishing costs
and give you better work.

Can be substituted for many expensive
milling machine and planer operations.



Made also in vertical and bench models.

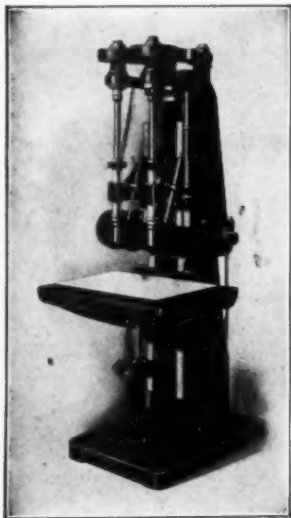
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PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

The **VIKTOR** Drilling Machine

**A new type of drill press, designed
to revolutionize drilling operations**



The VIKTOR, which is made with 1 to 8 spindles, is distinctly a new departure. Some of the good points are:

More production
More speed changes
More feed changes
Less floor space
Less upkeep expense
Less operative cost
Direct motor drive

A construction so rugged that it withstands unusual abuse, and enclosed mechanism that makes it fool-proof.

A machine so universal in its application that it will cover all of your drilling requirements within its capacity.

You will be interested in a detailed description of the outstanding features of the VIKTOR, and we shall be glad to send it to you. Just drop a line to—

The Henry & Wright Mfg. Co.
Hartford, Conn., U. S. A.

Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

FOR SALE BY

A. M. Stoehr Machinery Co.,

Blue printing and drying machine.
Boring mills, 42" Baush, 54 & 60"
Niles, all have 2 heads, and others.
Drill presses, 1 spindle Sigourney;
24" Barnes, with tap attachment.
Gear hobbors, cutters: 12" Cincinnati;
48" & 60" Gould & E., and others.
Grinders, Heald piston ring (4);
Nos. 1 and 3 LaSalle plain and
surface; 3"x18" Norton, and others.
Hammer, 500 lb. Beaudry, & others.
Lathes, 22" to 44" McCabe; 9x42
Barnes; 14x6 Rockford, q. c. g., late
type; 14x8 American, q. c. g.; 18x8
Barnes heavy duty; 15 & 24 spin-
ning, and others to 60".
Milling mchs., No. 25 Becker plain;
No. 14 Valley City plain; No. 6
Rockford plain; No. 2 Van Norman
Duplex; No. 3 Thurston dieing.
Oil extractors, centrifugal, (8).
Pipe machines, 2" & 6" Jarecki.

560 W. Adams St., Chicago, Ill.

Punch and shears, No. 5 Long & A.
double end, 4" thru 8"; No. 14 W.
double end, 15" thru, and others.
Punch presses, No. 16 Bliss horning;
No. 3 Bliss Stiles; No. 4 Robinson,
o. b. i.; No. 4 Long & A. multiple
punch; and others.
Rolls, 10' Bertsch, pipe forming.
Saws, 9x9 Sterling high speed; 12x12
Racine high speed.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme; No. 9
Brown & Sharpe; 9—No. 2 Brown
& Sharpe, others plain and univ.
Screw threader, No. 10 Waterbury.
Shapers, 18" Flather, crank; 24"
Kelly, b. g.; 24" Rockford, b. g.;
6" traveling head shaper.
Shears, No. 3 N. D. splitting, 1" cap;
Pittsburgh alligator, 1".
Welders, both spot and butt.
Wire strai't'g mche., 3/16" Shuster.

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

15"x 6' Flather, loose change..	\$ 250.	22"x18' Niles, loose change..	\$ 700.
16"x 8' Reed, loose change ..	275.	24"x12' Rahn-Laimon, quick	
20"x10' American, q. c., single		change, taper attachment....	975.
pulley drive, geared head...	750.	26"x14' Putnam, semi-quick	
22"x10' Niles, loose change....	400.	change, taper attachment....	1,300.

PLANERS.

30"x30"x12' Gray, 1 head.....	\$1,000.
33"x33"x 8' New Haven, 1 head.....	450.
33"x32"x12' American, 2 heads.....	1,250.
36"x36"x14' American, 2 heads.....	1,350.
42"x42"x20' Cincinnati, 2 heads.....	2,250.
Pedrick & Ayer open side, planes 30" wide, bed 11' long.....	1,000.

MISCELLANEOUS.

Bolt cutter, Acme 4" sgl. hd....	\$ 750.	Miller, No. 2-B heavy Brown	
Boring mill, 60" Niles vert.,		& Sharpe, sgl. pulley drive	\$ 950.
d. c. motor drive, with mtr....	750.	Motor, 30 h. p. Jantz & Leist,	
Drill press, 28" Cincinnati up-		d. c., 650 r. p. m	450.
right, b. g., single pulley,		Radial drill, 6" Niles full univ.,	
gear box drive.....	475.	d. c. motor dr., with motor....	750.
Drill press, 45" upright, back		Shaper, 12" Pratt & Whitney	
geared, power feed.....	300.	crank, traveling head.....	300.
Drill press, 24" Aurora up-		Shaper, 24" Barker, b. g. crank	675.
right, back gear, pwr. fd....	275.	Turret lathe, 24" Gisholt, d.c.	
Grinder, No. 60 Heald cylinder	750.	motor drive, with motor.....	500.

Many other bargains. Send us your requirements.

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co., 408 E. Pearl St., Cincinnati, Ohio
MILLING MACHINES.

No. 3 Brown & Sharpe, universal, cone type, complete.
 No. 2 R. K. LeBlond high power univ., cone type, complete.
 No. 2 Hendey-Norton universal, cone type, complete.
 No. 2 Garvin universal cone type, complete.
 No. 3-B Brown & Sharpe plain, single pulley.
 No. 3 Cincinnati plain, cone type.

No. 2-B Brown & Sharpe plain, single pulley.
 No. 3 Kempamith plain, cone type.
 No. 2 Cincinnati plain, cone type.
 No. 30 Oesterlein (Ohio) universal, cone type, complete.
 No. 0 Cincinnati plain, cone type.
 No. 6 Whitney hand miller.
 No. 3 Brown & Sharpe vertical, single pulley.
 No. 3-C Becker vert., cone type.

LATHES.

12"x 6' Hendey tool room, with taper attach and collets.
 11"x 6' Hendey tool room, with taper attach. and collets.
 16"x 6' American Tool Works high duty, geared head, q. c.
 16"x 8' Hendey, q. c., all geared head, single pulley.
 18"x 8' National, q. c., all grd. hd., arranged for motor drive.
 18"x 8' American Tool Works high duty, q. c.
 18"x 10' Greaves & Klusman, q. c. g., latest type.

20"x 10' American Tool Works, q. c., all geared head, single pulley.
 22"x 10' Hamilton, semi-qck chg. gr.
 24"x 12' Rahn & Larmon, qck. chg., with taper.
 24" raised to swing 30"x 14' LeBlond, standard change gear.
 25"x 12' R. K. LeBlond heavy duty, quick change gear.
 27"x 18' R. K. LeBlond heavy duty, quick change gear.
 30"x 12' Lodge & Shipley, q. c. g.
 36"x 22' Putnam triple geared, semi-quick change gear.

RADIAL AND UPRIGHT DRILLS.

5' Niles-Bement-Pond full universal radial, single pulley, gear box.
 4' Western plain radial, gear box drive.
 3' American Tool Works plain radial, cone pulley drive.
 2 1/2' Cincinnati-Bickford plain radial, gear box drive.
 25" Kokomo upright, sliding head, back geared, power feeds.
 24" Cincinnati-Bickford upright, gear box drive, tapping attachments.
 26" W. F. & John Barnes upright, sliding head, back geared, power feeds.
 22" W. F. & John Barnes upright, sliding head, back geared, power feed.
 20" Barnes four-spindle gang, auto. approach and return feed.
 No. 25 Foote-Burt heavy duty vertical, gear box drive.
 2-spindle Allen high speed ball bearing sensitive.
 Avey high speed single spindle ball bearing sensitive.

MISCELLANEOUS.

Air compressor, 12"x 10" Ingersoll-Rand class E-R-1, belted drive.
 Air compressor, 8"x 8" Chicago Pneumatic Tool Co., belted drive.
 Bolt cutter, 2 1/2" Acme, single head.
 Bolt cutter, 1" Acme, single head.
 Bolt cutter, 1" Acme, two spindle.
 Boring mill, vertical, 24" Bullard, New Era type, with turret and side head.
 Boring mill, vertical, 30" Colburn, with turret head.
 Boring mill, vertical, 42" Bridgeport, with turret head.
 Boring mill, horizontal, No. 21 Lucas, gear box drive, with 2 1/2" bar.
 Brake, hand power, 12' Dries & Krump.
 Grinder, No. 60 Heald cylinder, complete equipment.
 Grinder, No. 70 Heald internal.
 Grinder, No. 3 Oakley universal tool and cutter, with power feed.
 Grinder, No. 1 1/2 Cincinnati universal tool and cutter.
 Grinder, 6"x 18" Landis plain, self-contained.
 Pipe machine, power, 3" Bignall & Keeler, single pulley, gear box drive.
 Planer, 30"x 30"x 12' G. A. Gray, one head on rail.
 Planer, 36"x 36"x 12' American Tool Works, belt drive, two heads.
 Press, power, No. 5 Toledo, geared, open back inclinable.
 Press, No. 3 1/2 Toledo open back inclinable, fly wheel drive.
 Press, power forcing, 15-ton Lucas, high power.
 Punch & shear, dbl. end, No. 17 Williams-White, cap. 1/2"x 1/2". with 25" throat.
 Shear, power squaring, 42" Niagara, cap. 18 gauge and lighter.

SECOND-HAND MACHINERY

Eastern Machinery Co.—Continued.

MISCELLANEOUS—CONTINUED.

Slotter, 24" Newton, cone drive.

Turret lathe, No. 4 Milholland universal, geared head.

Turret lathes, No. 3-A W. & S. univ. hollow hex., grd. hd., chucking equip.

Turret screw mche., No. 6 Warner & Swasey, with power feed to cross slide.

Welder, butt, National, capacity up to 1" diameter.

Welder, spot, Federal Electric type 330B, cap. up to 2 pieces 1/2" metal.

And many others. Send for our complete list of bargains.

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17'44" Bement-Miles.

37"x14" Johnson d. b. g., q. c. f., t. a.

32"x12" Pittsburgh, heavy duty, q. c. g.

27"x12" Bullard.

26"x11" Wickes, q. c. g.

25"x10" Niles, q. c. g.

25"x14" Hendey, q. c. g., taper attachment, oil pan, (2).

24"x14" Porter.

21"x8" LeBlond.

20"x8" Walcott, d. b. g., q. c. g., (2).

20"x8" Whitcomb Blaisdell, q. c. g.

19"x10" Draper, patent head.

18"x8" Davis, q. c., d. b. g.

18"x7" Chard, d. b. g., semi q. c. g.

18"x6" to 8" lathes, (6).

16"x8" Greaves & Klusman, b. g., t. a.

And many others.

TURRET LATHES.

3x26" Pond, triangle.

3x36" Pratt & Whitney, hollow hex.

40" Acme flat, 24", h. s. motor drive.

20x7" 6" Pratt & Whitney, back grd.

20x7" Bridgeport, 2 1/2" h. s.

19"x7" Fay & Scott, back grd.

No. 22 1/2" Garvin Monitor.

No. 2 Kempamith.

14"x6" Warner & Swasey.

16"x6" Johnson, back grd.

No. 3 Bardons & Oliver back grd.

14"x5" 3" Pratt & Whitney, (2).

No. 3 Foster Kimball.

DRILL PRESSES.

43" Gang radial, s. p. speed box.

40" Barnes horizontal radials, (2).

36" Bickford radial, circular base, motor driven.

25" Rockford, q. c. g. feed (2).

26" No. 3 Avey high speed, (2).

11" 6-spindle Allen sensitive.

Henry & Wright sensitive.

Plain drills, all sizes.

Drill presses, assorted sizes.

MILLING MACHINES.

33"x6" Ingersoll horizontal slab.

No. 8 Cincinnati, table 9'x50 1/2".

No. 2 Pratt & Whitney die sinker.

No. 15 Garvin, table 12x42".

No. 3 Becker Brainard, table 12x40".

No. 3 Hendey-Norton, q. c. g.

No. 6V Brown & Sharpe plain, (2).

No. 5-C Becker vert., rotary table.

No. 5-B Becker vert., table 14x43.

No. 7-H Lincoln type Becker miller.

PLANERS AND SHAPERS.

12"x10"x25" Sellers planer, 4 heads.

30"x30"x8" Hewes & Phillips planer.

30"x30"x8" Putnam planer.

26 1/2"x26" x 6" Hendey planer.

24"x34"x6" Sellers planer.

48" Morton draw-cut shaper.

39" Pedrick & Ayer, open side.

26" Cincinnati.

14" Warren shaper.

MISCELLANEOUS.

Band metal saw, 6x6 Napier.

Boring mill, car wheel, 60" Newton.

Boring mill, 36" Baush & Harris vertical, double head.

Boring, drilling and milling machine,

17 1/2" Bement Niles horizontal.

Centering machine, 4" Whiton.

Grinder, 13"x5" Landis universal.

Grinder, No. 1 Norton universal.

Grinder, disc, No. 17 Besly.

Grinder, disc, No. 1 Besly.

Hammer, 15 lb. Bradley helve.

Hammer, 25 lb. Little Giant, m. d.

Hammer, 40 lb. Bradley, helve.

Hammer, 60 lb. Hotchkiss.

Hammers, 60 lb. Bellefonte upright; 2

Hammer, 500 lb. Merrill belt drop.

Hammer, 1000 lb. Merrill board drop.

Hammer, 1250 lb. Bell steam.

Keyseaters, 18" stroke Morton, (2).

Punch presses, all sizes, (55).

Punch & shear, Industrial Wks, d. c.,

capacity 1/2" in 1", squaring 1"x6".

Slotter, 14" Niles.

Tooth rounding mche., Schuchardt

& Schutte.

Large assortment of General Machinery. Send for Complete List.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., 1738 St. Clair Ave., N. E., Cleveland, O.

BOLT CUTTERS AND PIPE MACHINES.

- 1" Acme, style B, with dies, 75%.
- 4" Acme, single head, complete with equipment of dies and lead screws, 75%.
- 4" Jarecki No. 44, with dies and c. s., pipe turns, die stationary, 85%.
- 8" Jarecki No. 88, with dies and c. s., pipe turns, die stationary, 85%.

BORING MILLS—VERTICAL.

- 44" Niles, double swivel head, single pulley drive, 90%.
- 2-60" Bullard, 2-head, standard, 60%.

DRAW BENCHES.

- 15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20' draw, with 18' extensions for mandrels, heavy cast iron; 80%.

DRILLS—MULTI-SPINDLE.

- 4-spindle Barnes, all geared.
- 4 spindle 20" Barnes, cone drive, 85%.
- 4 spdl. No. 4 Colburn, arr. for motor dr., all grd., cap. about 3" in steel, 90%.

DRILLS—RADIAL.

- No. 3, 10' Cleveland Punch & Shear wall radial; No. 1, 8' wall radials.

DRILLS—UPRIGHT.

- 20" Mechanics drills.
- 20" same as above.
- 24" Rockford, as above.
- 24" Kokomo hi-speed, sliding head, 75%.
- 34" Aurora, sliding head, b. g.
- 30" Aurora, sliding head, 60%.
- 32" Cincinnati, with tap. att., 75%.
- 24" No. 25, Foote-Burt pl. comp. tbl.
- 24" No. 25 Foote-Burt 80%, (5).

ELECTRICAL EQUIPMENT AND MOTORS.

- No. 9—200 k. w. General Electric generator set, 2300 volt, 60 cycle, 3 phase, to 275 d. c.
- Motors, d. c., 1 to 25 h. p.
- Motors, a. c., $\frac{1}{2}$ to 40 h. p.

TRANSFORMERS.

- 3 General Electric 50 kva type S 2200-220-110 2300-230-115 2400-240-120.
- 3 General Electric 25 kva type S 2200-220-110 2300-230-115 2400-240-120.
- 2 General Electric 20 kw type N Class 400-16000 Alternations Style 10235.
- 2 General Electric 15 kva type H Form K Cycle 60 volts, 2200-1950-110-220.
- 3 General Electric 667 kva 23000-2300
- 2 Adams-Bagnall 40 kva 60 cycle, 440-220-110, serial No. 45304 & 45304-544.
- 1 Adams-Bagnall 5 kva 60 cycle, 460-230-110, serial No. 41029.

FORGING MACHINES.

- 1" Ajax 75%, (3).
- 3 $\frac{1}{2}$ " Ajax iron body 85%.
- 250-ton Mesta steam hydraulic, 85%.

HAMMERS.

- 600 lb. Merrill board drop, 95%.
- 850 lb. Bell steam forging, 85%.
- No. 8 Beaudry, power, arranged for motor drive, 80%.
- No. 6 Nazel air hammer; frame cracked but patched in workman-like manner and in good operating cond., arranged for motor drive.

GRINDERS.

- No. 3 Brown & Sharpe univ., 70%.
- 10x36" Modern univ., and parts, 70%.
- 7 $\frac{1}{2}$ " Diamond surface grinder, 85%.
- No. 75 Heald internal, with extra spindles and c/s, 85%.
- Washburn drill grinder, 70%.
- No. 4 Gardner motor driven disc grinder, with discs, cup, wheel and press; 10 h. p. motor, 1200 r. p. m., 220 volt, 60 cycle, 3 phase, a. c.
- Yankee drill grinder.

LATHES.

- 14"x 6' Hendey tool room, & equip.
- 12"x 6' South Bend, 90%.
- 12"x 5' Hendey tool room, & equip.
- 16"x 6' Hendey, pan bed, 85%.
- 16"x9' Lehmann.
- 16"x 9' Chard with 2 chucks fitted.
- 18"x 8' Lodge & Shipley, 70%, (4).
- 18"x10' American, 80%.
- 19"x 8' LeBlond friction hd., 60%.
- 24"x12' Reed, belt feed, loose change gears 60%.
- 26"x14' Bridgeford geared hd.: 85%.
- 32"x18' Schumacher, cone head, 80%.
- 48"x26' Bridgeford geared head, 9 speeds in head, taper att., 85%.

(Continued on next page)

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

MILLING MACHINES.

- | | |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Style "B" Gooley & Edlund, Briggs, Lincoln type, mfg., gear fd., 80%. (2). | No. 2 Cleveland full univ., single pulley drive, with heads, braces, vise and arbor, 85%. |
| 20"x7"x18" Oesterlein plain, 50%. | No. 3 Brown & S. pl., cone dr., 65%. |
| No. 0 Steptoe plain univ. heads, 90%. | No. 5 Becker vertical, old style, no countershaft, 60%. |
| No. 0 Rockford, power feed, arbor, vise, new. | No. 13 Brown & S., Lincoln type. |
| No. 1 Rockford pl. bk. geared, 90%. | 30"x10" Newton Slab Miller, arranged for motor drive. |
| No. 2 Brown & Sharpe vertical, 80%. | |
| No. 2-A Brown & Sharpe univ., 75%. | |

PLANERS.

- | | |
|------------------------------------------|----------------------------------------------------------------------------------|
| 22"x24"x57" Fitchburg. | 36"x36"x12' Bickett, 3 heads, with d. c. and variable speed reversing motor 90%. |
| 24"x24"x6" Liberty, 1 head, new. | 60"x48"x16" Pond, 2 hds., old style, light pattern, fair condition. |
| 30"x30"x8" Gray, single head, 80%. | |
| 30"x30"x8" Gray, single head, 70%. | |
| 48"x48"x15" Gray, 4 hds., mtr. dr., 95%. | |

PRESSES.

- 59½ Toledo straight side, single crank, tie rod frame, bolster 40"x40", stroke 8", friction clutch, belt motor drive.
- DP-56 Ferracut straight side or trimming press; geared, arranged for side shear which has been removed and could be replaced. Stroke 5", die space 18½", weight about 15,000 lbs.
- No. 6 Niagara, 3" stroke, 9½" die space; frame has been welded; arranged for motor drive.
- Double crank Niagara, light, 5" stroke, 9" die space, 48" between housing.

PUNCHES AND SHEARS.

- No. 2 Hilles & Jones horiz. punch; 8" throat cap. 4"x4", belt drive, 70%.
- 42" gap American ship punch, capacity 1"x1", 70%.
- 54" gap American ship punch, capacity 1"x1", 70%.
- 60" Stoll geared shear, capacity about 1".

SLOTTERS.

- 12" Sellers, 75%.
- 10" Newton, with countershaft, 75%.
- 16"-15" Dill; adjusting ram, arranged for motor drive.

SAWS.

- No. 3 Ajax hot saw and burring machine, complete, 80%.
- 36" Klemm metal band saw, 75%.
- 6" used Racine hack saw, 75%.

SHAPERS.

- 15" Potter & Johnston, tilting table.
- 20" American, crank, belt.
- 21" Averbeck, no countershaft, 75%.
- 24" Walcott, crank, back geared, 90%.
- 20" Walcott, crank, back geared.

TINNERS' TOOLS.

- 39" Crimper.
- 30" Squaring shear.
- 48" Folder.

TURRET LATHES AND SCREW MACHINES.

- 2"x24" Warner & Swasey.
- 24" Gisholt, late model, 85%.
- 21" Gisholt, standard model, 70%.

WOODWORKING TOOLS.

- Emery wheel, No. 3.
- Pattern lathe, Fay & Egan 12".
- Planer, Fay & Egan, pony.
- Post drill, 15" Silver.
- Ripsaw, Fay & Egan.

MISCELLANEOUS.

- Face plate jaws for vertical boring mill, (4).
- Magnetic chucks, (2).
- Gear cutter, 36" Gould & Eberhardt.
- Riveter, Hanna I-beam frame, 18" reach, 12" gap, 10½" cylinder.

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

- | | |
|---------------------------------------------|----------------------------------------------|
| Box nailer, Morgan No. 7, mtr. dr. | Miller, No. 20 Ohio universal. |
| Drill press, 4-spindle gang. | Miller, No. 00 B. & S. hand. |
| Lathes, 16"x6" L. & S. q. c. d. b. g., (4). | Planer, 42"x42"x8" Gray. |
| Lathe, 17"x8" Sidney, q. c. d. b. g. | Punch press, No. 21 Bliss, 5" str., o. b. i. |
| Miller, Steptoe No. 0, b. g. | Punch press, No. 51½ Cleveland, a. s. |
| Miller, No. 2 B. & S. universal. | Shaper, 16" Queen City, b. g. |

SECOND-HAND MACHINERY

FOR SALE BY

Sherrod S. MacIntosh & Co., 412 Frankfort Ave., Cleveland, Ohio

Drilling machine, Allen 3-spindle sensitive, 90%.

Grinder, No. 1 Detroit centerless, 95%.

Lathe, 18"x8" Boye & Emmes, 95%.

Lathe, 36"x24" Niles, motor drive, 85%.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

12"x60" Fitchburg Lo-Swing.

14"x 6" Hamilton.

14"x 6" Prentice Bros., s. b. g., l. c.

g., with t. a., with 8" 4-jaw ind. ck.

15"x 6" South Bend, c. r. complete.

16"x 6" South Bend, c. r. complete.

18"x 8" Prentice c. r., l. c. g., chuck.

TURRET LATHES AND

No. 1 Warner & S., p. h., a. c. and b. f.

No. 2-A W. & S. g. h. tur. lathes.

No. 3-A W. & S. g. h. turret lathe.

No. 3, 1 1/2" Wood tilted turret.

1 1/2" Acme screw mche., p. f. to tur.

26" Gisholt heavy duty turret lathe.

2"x24" Jones & L. g. h. flat turret.

DRILLING MACHINES.

20" W. F. & John Barnes, stationary head, b. g. and p. f. (2).

Henry & W. sgl. sp., h. s., b. b., ck.

No. 1 Minster high speed heavy duty, with pump.

25" Superior, sliding hd., b. g., p. f., with tapping attachment.

4-spindle Leland-Gifford, h. s., b. b., with p. f. to each spindle.

24" Baker heavy duty.

MILLING MACHINES.

No. 7 Becker plain.

No. 26 Becker pl., without bk. grs., with power fd., pump and tank.

No. 1 1/2 Rockford plain, with div. hd.

No. 24 Ohio plain b. g. complete.

GRINDERS.

No. 10 Cochrane-Bly auto. bench saw filing machine.

Type "DE" Hisey-Wolf internal.

No. 14-16 Besly, wet ring wheel.

No. 11 B. & S. plain grinders, (2).

SHAPERS AND PLANERS.

22"x22"x 5' Putnam planers (2).

42"x48"x10' Sellers planer.

METAL CUTTING TOOLS AND SQUARING SHEARS.

Higley cold saw.

3" new Davis cutting-off machine.

GEAR CUTTERS AND HOBBS

26" & 36" No. 3 Brown & S. auto.

No. 13 Brown & Sharpe auto.

HAMMERS.

Coffman post pwr. dr. hammer, 25 lbs.

Cady belt drop hammer, 100 lbs.

MISCELLANEOUS.

Bench tapper, Montgomery, 1/2" cap.

Bench tapper, Hubbell, 1/2" cap.

Bolt cutter, 2" Morgan.

14"x 6" Reed, r. & f. rest.

18"x10" Star, 4-s. c., s. g., with 16" 4-jaw ind. chuck.

14"x6" Hendey q. c. g., c. r. and t. a., with draw-in attach. and collets.

14"x6" Monarch, c. r., standard.

14"x8" Monarch, c. r., stand. pattern.

SCREW MACHINES.

No. 00 Brown & Sharpe auto.

No. 0 Brown & Sharpe auto. (3).

No. 2 Brown & Sharpe auto. (2).

No. 2 Warner & S. p. h. screw mchs., a. c. & b. f., p. f. to turret. (3).

1" Biggs, p. h., a. c. & b. f.

No. 4 W. & S., p. h., a. c. & b. f.

MACHINES.

6' arm Western radial, with tap. att., arranged for motor drive.

20" W. F. & John Barnes, stationary head, p. l. l., (2).

21" Superior, stationary hd., p. l. f.

20" Superior, stationary hd., p. l. f.

5' arm American triple geared radial with speed box, s. p. d., with t. a. and box table.

4' arm Hammond h. s. radial.

MILLING MACHINES.

No. 1-Y Brown & Sharpe plain.

No. 22 Garvin, vertical spindle.

Potter & Johnston dbl. table automatic production miller.

American drill grinder.

Type WTA Cincinnati.

Plain emery wh'lstand with column.

No. 1 W. & M. univ. cutter & reamer.

36"x36"x12" W. & P., two rail heads.

36" Niagara foot power squ. shear.

30" Niagara foot power squar. shear.

No. 12 Barber-Colman hobbors.

Quickwork body hammer.

Broaching machine, Lapointe No. 1 1/2.

Pipe mche., No. 1, 1/2" to 2" Williams.

Pipe mche., No. 3, 1" to 6" Williams.

SECOND-HAND MACHINERY

FOR SALE BY

Tuber, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.
Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 2 Walsh.
 No. 4 Walsh, (5).
 No. 5 American Can.
 No. 7 Beatty, cap. 14" in 1".
 No. 15 Torris Wold.
 1634 Toledo, 94" stroke.
 Stiles & Parker.
 Nos. 13 & 15 single end punches.

No. 15 Kick presses.
 Long & Allstatter horn punch, capacity 14x1.
 No. 17 Williams-White double end punch & shear.
 No. 786 Kling Bros. comb. punch & shear.

DRILL PRESSES.

14" Excelsior.
 20" b. g., p. f., new, \$130.
 20" Weigel.
 26" Hoefer.

4-spindle Avey, hi-speed, auto. feed.
 4-sp. Whipp, hi-speed, No. 2 taper.
 Bench type drills, \$16.

MILLING MACHINES.

No. 2 LeBlond.
 No. 2 Cincinnati vertical.
 No. 3 Kempsmith.

Kearney & Trecker No. 2-A, single pulley drive.
 A number of hand millers.

LATHES.

11"x 5' Sterling.
 12"x 5' Worcester, q. c.
 14"x 6' Prentice.
 15"x 8' Sidney, q. c.
 16"x 6' Sidney, q. c., (2).
 16"x 6' Monarch q. c.
 16"x 8' Canedy-Otto.
 16"x 6' Hendey, q. c., taper att.
 16"x 8' South Bend, q. c.

17"x 8' Sidney, q. c.
 18"x 8' Chard.
 19"x 10' Sidney, q. c., (2).
 20"x 8' Lodge & Shipley, geared head, s. p. drive.
 24"x 10' Canadian, q. c., d. b. g., (3).
 26"x 10' Lodge & Shipley, q. c.
 27"x 14' Sidney, q. c.
 Dalton Six.

PLANERS.

24"x 24"x 8' Pond.
 24"x 24"x 8' Putnam.
 30"x 30"x 8' Fitchburg.

36"x 36"x 7' Flather, 2 heads.
 36"x 36"x 8' Cincinnati.

SHAPERS.

14" Steptoe.
 16" Ohio.
 16" & 20" Whipp, b. g.

16" Columbia.
 24" Rockford.
 24" Kelly.

SCREW MACHINES.

No. 2 Pratt & Whitney, hand.
 Warner & Swasey.

No. 2 Smith, hand.

GRINDERS.

No. 2 Manhattan surface.
 No. 14 Besly, disc.

Emery grinders, \$2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
 Boring mills, Andrew, (3).
 Clipper, power, 100" Capitol.
 Glue jointer, Falls.
 Planer, 30" Berlin.

Resaw, 54", with 6" blade.
 Sander, 48" American.
 Sander, 66" American.
 Sticklers, 6 and 9".
 Swing saws, Porter, (4).

MISCELLANEOUS.

Buffers, U. S. and Westinghouse,
 5 h. p., b. b.
 Cold saw, No. 20 Lea-Simplex.
 Hack saws.
 Lift trucks, Barrett, 1 ton cap.
 Motors, a. c. and d. c.

Punch & shear, No. C Cleveland.
 Radial drill, 34' Canedy-Otto.
 Radial drill, 34' Cin'ti Bickford.
 Roll, power, 7' Beloit, 8" capacity.
 Time clocks, International.
 Woodworking machines.

Leather belting. Pulleys, shafting and hangers.

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can our advertisers know that your inquiry comes from Hitchcock's List unless you tell them? When writing them, won't you kindly say that you saw it in Hitchcock's? That will be sufficient.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., 28th St. & A. V. R. R., Pittsburgh, Pa.
LATHES.

50"x49"6" Johnson, triple geared.
50"x25" Putnam, geared head.
30"x12" New Haven.
28"x14" Putnam, h. s.
26"x12" Pittsburgh, dbl. b. g.
26"x20"6" Putnam, b. g., c. r.
26"x10"6" Walcott, q. c. g.
24"x16"6" Johnson lathe.
24"x14" Rahn-Mayer-Carpenter.
19"x10" LeBlond, motor drive.
19"x6" Bullard, c. r., b. g.
18"x8" Mueller, q. c. g.

18"x8" Sidney, q. c. g., d. b. g.
16"x6" Blaisdell, h. s.
16"x6" Cleveland, q. c. g., new.
16"x6" South Bend, h. s., t. a.
15"x8" Schellenbach, d. b. g., h. s.
16"x5" Fox turret with chasing bar.
3"x36" J. & L. flat turret.
24"x24" J. & L. flat turret.
24"x6" Gisholt tur., 64" h.s., m.d.
1"x7" Acme screw machine.
10"x4" Blount speed lathe.
12"x48" speed lathe.

PLANERS AND SHAPERS.

24"x24"x8" Chandler planer.
32"x32"x8" New Haven, 1 head.
48"x48"x16"2" Cleveland open side
planer, 1 side & 2 rail heads.
48"x48"x22" Pond planer, 4 heads.

120"x120"x25" Sellers planer, 4 heads.
16" G. & E. sgl. grd. crank shaper.
24" Kelly b. g. cr. shaper.
24" Queen City, b. g. cr. shaper, m.d.
32" Smith-Mills b. g. crank.

DRILLS AND BORING MILLS.

20" Champion, new, pl. w. & l.
36" Prentice, sliding head.
24" Aurora b. g. drill.
40" New Haven, b. g. drill.
4" Dreses, 4" Bickford radial.
6 1/2" & 8" Pond radial drills.
24" Canedy-Otto post radial.
1" Champion post drill.

30" W. & S. boring mill.
36" Bridgeport boring mill.
42" & 50" Bullard bor. m., 2 heads.
42" Bullard New Era boring mill.
36", 51", 90", 10" Niles bor. mills.
84" Pond boring mill.
Beaman & Smith post type hor. boring
mill, 34" bar, m. d.

PUNCHES, SHEARS, PRESSES AND ROLLS.

Fischer s. e. punch & shear, 1"x1".
King Bridge Co. s. e. punch, 30" thr.
50" throat Reade sgl. end punch and
shear; massive construction.
Covington No. 2 s. e. punch & shear,
1"x1".
Cleveland s. e. punch & shear, 1"x1".
L. & A. punch & she. Nos. 6, 7.
Mahoning punch & shear, 32" thr.
Plunger type punch & shear, 9" thr.,
six 1/2" holes thru 1/2" plate and 6x1/2"
at one operation.

Waterbury-Farrel rotary sh., 14" thr.
Hilles & Jones gate shear, capacity
84x1/2", motor drive.
Pusey-Jones guillotine shear, 3" cap.
Hilles & Jones guillotine shear, 2 1/2"
Niagara pr. sq. shears., 36".
Toledo No. 52 geared arch press.
No. 56 dbl. housing knuckle press.
Double acting drawing press, 3 1/2"
stroke.

Lewis alligator shear, cap. 14".
Carlin alligator shear, 14" capacity.
Carlin alligator shear, 24", m. d.
Canton alligator shear, 3", m. d.
Garrison plate shear, cap. 3"x81", m. d.

Stiles No. 3 inclinable press.
Baird No. 1 foot power presses.
Baird Nos. 3 & 1 open back presses.
Z. & H. inc. press.
Straight-side punch press, 1/2" str.
Caldwell 200 ton hydraulic wheel
press, 38" between bars, m. d.

MISCELLANEOUS.

Air compressors: Chicago 19x12x14;
Chicago 9"x11".
Blowers, Buffalo No. 8 vol.; Stur-
tevant No. 8.
Bulldozers, W.-W. Nos. 2 & 4.
Cold saw, Wagner, size 18 type 3.
Cranes, portable 2 & 2 1/2 ton.
Engine, gas, 15 h. p. Fenner.
Forge, No. 41 Champion new.
Gear cutters, No. 13 B. & S.
Gear hobber, 160"x32", for high
speed gears; will cut spur, worm
and spiral gears; m. d.
Grinder, Ott 6"x6" internal.
Grinder, Ott 5"x18" plain.
Grinder, Landis No. 3 universal.
Grinder, Plymouth No. 17.
Grinders, Norton & W.-P. 24"x4".

Hammers, 25, 60, 90 & 100 lb. Bradley
helve; 75 lb. upright strap.
Hammers: 1500 lb. Bement st. dr.;
500, 2000 lb. B-M st. forging.
Millers: Cincinnati No. 2 high duty
universal; Cin'ti No. 3-S univ.;
Hendey-Norton No. 3 universal;
B. & S. No. 2-B, Cincinnati No. 3,
and Garvin No. 12 plain; Briggs
high duty production; Cincinnati
No. 2 vertical.
Motors, Fairbanks-Morse, 30 h. p.,
3 phase, 60 cycle.
Pipe machines, Merrill 4".
Pipe machines, Eaton-Cole-Burn-
ham 4" & 8"; B. & K. 3 1/2" to 16".
Slotter, Niles 15".
Upsetters, Acme, 1/2" steel bed.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer,

30 Church St., New York City

AUTOMATIC SCREW MACHINES.

Cleveland model A, 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 3 $\frac{1}{2}$ ",
4 $\frac{1}{2}$ ", 6", 6 $\frac{1}{2}$ ".
National Acme Nos. 512, 52, 53, 54.

Fay auto., with air chuck.
New Britain Nos. 23 & 24.
Gridley, single spindle, 3 $\frac{1}{2}$ ".

BORING MILLS, VERTICAL AND HORIZONTAL.

51" Bullard, belt drive.
53" Niles-B.-B. rapid trav., a. c., m. d.
30" King turret head.
No. 2 Rochester, 3" bar, s. p. d.

60" Niles-B.-P., vertical, s. p. d.
72" Cincinnati, massive type, m. d.
No. 3 Universal horizontal, s. p. d.
Barrett cylinder No. 1.

CRANES AND HOISTS.

50 t., 88' span P. & H., 220 v., d. c.
5 t. Northern, 57', 45', 37' spans, d. c.

10 t., 76' span Milwaukee, 220, d. c.
5-t. North. trolley hoist, 3 p., 60 c.

DRILLS, UPRIGHT AND RADIAL.

6', 5', 4' Reed Prentice, s. p. d.
3 $\frac{1}{2}$ " Morris, s. p. d., latest type.
23" W. F. & J. Barnes, b. g., p. f.

4 $\frac{1}{2}$ " Mueller, t. a., arr. motor drive.
No. 310 Baker heavy duty.
24" Cincinnati Bickford, latest.

GEAR CUTTERS.

48"x10" Gould & Eberhardt
Nos. 2 & 3 Barber Colman hobbors.

26" No. 3 Brown & Sharpe.
No. 2 $\frac{1}{2}$ Bilton automatic.

GRINDERS, SURFACE, HOLE AND CUTTER.

No. 16 Blanchard vert. surface, a. c.
motor drive, 3 ph., 60 c., high serial
numbers (3).
No. 14 Pratt & Whitney vert. sur.
No. 60 Heald cylinder, complete.
10"x36" Norton plain.
No. 10A Bryant hole.

6"x24" Norton plain.
12"x48" Modern plain, new.
No. 2 Brown & Sharpe surface.
10"x24" Landis plain, self-c.
Abrasive Material Co., surface.
No. 1 LeBlond cutter and tool.

KEYSEATERS.

No. 7 Burr, cap. 1 $\frac{1}{2}$ ", routing attach.

No. 1 Baker, 12" stroke, 1 $\frac{1}{2}$ " cap.

LATHES, ENGINE.

44"x24" Niles-P.-B., t. g., belt drive.
32"x12" Mueller, low price.
24"x32"x16" Lodge & Shipley, q. c.
50" Hendey pulley lathe.
Hendey tool room, 14", 16", 18".

36"x14" Harrington, low price.
28"x21" Flather, q. c. & taper.
22"x12" Lodge & Shipley, g. h., s. p. d.
20"x10" American, q. c., d. b. g.
18"x 8" American, q. c.

LATHES, TURRET.

No. 2-A Warner & Swasey.
3 $\frac{1}{2}$ "x36" Acme flat, chuck equip.
24" Gisholt, 6 $\frac{1}{2}$ " hole thru spindle.

24"x26" Acme flat, bar equip.
24"x26" J. & L., chuck & bar.
18" Libby, s. p. d., equipment.

MILLING MACHINES.

No. 4-H Brown & Sharpe plain.
No. 3 Cincinnati h. p. vertical.
No. 2 Rockford universal.

No. 4 Cincinnati high power plain.
Ohio 34", 12", 19" universal.
No. 13 Brown & Sharpe, mfg. type.

PLANERS.

60"x60"x12" N.-B.-P., elec. rev. dr.
48"x48"x30" Putnam, 4 h., b. d.

48"x48"x14" Patch, 4 h., m. d.
28"x28"x19" American.

LARGE TOGGLE DRAWING PRESSES.

No. 169 $\frac{1}{2}$ Toledo, strokes 42" & 37".
SA-154 Ferracute, strokes 20" & 8 $\frac{1}{2}$ ".

SA-175 Ferracute, 500 ton.
SA9 53 Ferracute, 1500 ton.

PUNCHES AND SHEARS.

Hillis & J. gate, cap. 9"x1".
H. & J. No. 5, 60" t. a. c. motor d.
No. 7 Ryerson, 72" t., 1 $\frac{1}{2}$ "x1" cap.

Hillis & J. double angle, 6"x1.
H. & J. No. 6, 32" t., belt d.
H. & J. No. 4, double, a. c., m. d.

SHAPERS.

25" Smith & Mills b. g. crank.
16" Milwaukee b. g. crank.

24" Potter & J. universal.
16" Smith & Mills.

MISCELLANEOUS PLANT EQUIPMENT.

Air drills, Thor, \$20. to \$50.
Air hammers, 2" & 6" Boyer, \$15.
Blower, pressure, No. 3 Root, 20 r. p. m.
Electric welding set, G. E., a. c.
Gas engine, 15 h. p. Novo 2 c., new.
Gas furnace, No. 5 American.

Generator set, 200 k. w. cross com-
pound, d. c.
Turbo generator set, 300 k. w., 3 ph.,
60 cycle.
Turbo generator set, 200 k. w., d. c.
Upsetter, Ajax, capacity 1 $\frac{1}{2}$ ".

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

BOILER EQUIPMENT.

Long & A. No. 0 angle shear, 4x4 ft.
Felber combination punch & slitting
shear, 1" in 1".

Scully hvy. punch, 1" in 1", thrt. 20".

Brakes, 6' 8", & 10' hand.

Lathes, 40-50" to 24" South Bend;

26" x 14" Hamilton, q. c. g.

Milling mches., Milwaukee No. 1A,

Hendey No. 2 universal, American

No. 1 1/2 univ.; Becker model SD

vert., rotary table, wt. 16,000 lbs.;

20 plain millers; Cinti. No. 1 1/2 univ.

Planers, 36" x 36" x 23" Sellers, 2 hds.;

42" x 42" x 16" Pond, 2 heads.

H. & J. No. 6 punch, 1/2" in 1/2" 14" thrt.

Badger punch, 36" throat, 1/2" in 1/2".

Miscellaneous equipment, screw
punches, taps, flues, hoists, etc.

MISCELLANEOUS.

Presses, No. 2 Rockford and Consol-

idated, No. 19 Bliss, No. 40 Swaine.

Radial drill, 5' American.

Screw mchs., B. & S. No. 00, Foster

No. 3 hand, 2 Woods No. 2 tilt. tur.

Shapers, new 12", 14", 16" & 20";

36" Fellows, gear; used 16" & 24".

Sheet metal tools, Yoder and Pexto.

Slitting shear, No. 10 Quickwork.

Welders, butt and spot.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave.,

Pittsburgh, Pa.

Air compressor, 321' Laidlaw, b. d.

Bolt cutters, 3' Landis, single head

lead screw, (2).

Boring mills, 30" Bullard, 1 head.

Boring mill, 34" Colburn, 1 head.

Boring mill, 72" Betts vert., 2 hds.

Boring mill, 90" Niles vert., 2 hds.

Buffer, No. 14 Builders Iron Fdry.

Bulldozers, Nos. 5, 6, 7 & 8 W.-W.

Die sinker, No. 6 Jackson.

Die slotter, 3 1/2" stroke, Garvin.

Drill, 21" Cincinnati, s. h., t. a.

Drill, 24" Hoefel, sliding head.

Drill, 26" Rockford, sliding head.

Drill, 36" Snyder, sliding head.

Drill, 45" Snyder, sliding hd., t. a.

Drill, 2' 6" Cariton high speed radial.

Drills, Amer. 4 & 5 radial g. b., s. p. d.

Drills, No. 2 Colburn, mfg. type, (4).

Drill, No. 2 Colburn 4-spdl. gang.

Drillers, 5-spindle Detroit, (2).

Flanging machine, McCabe.

Gear cutter, 24" Becker-B. auto.

Gear cutter, 36" Whiton.

Gear cutter, 60" Gould & E.

Hammer, 40 lb. Bradley, cush. helve.

Hammer, 100 lb. upright power, b. d.

Hammer, 2500 lb. Morgan, st. forg.

Lathe, 14" x 8" Whitcomb-Blaisdell.

Lathe, 15" x 6" Prentice, bargain.

Lathe, 18x10" Reed, q. c. g., d. b. g.

Lathe, 20x12" Bradford, t. a.

Lathe, 24" x 12" Rahn & L., q. c. g.

Lathe, 26" x 18" Bridgeford, quick

change gear, double back grd.

Lathe, 30" x 12" Johnson, triple grd.

Lathe, 34" x 12" LeBlond, trip. grd.

Lathe, 36" x 18" American, grd. hd.

Miller, No. 2 Cincinnati, h. p. vert.

Miller, No. 2 Knight vertical.

Miller, No. 3 Hendey plain.

Miller, model "B" Becker, vert., s. p. d.

Nut tapper, 1/2" Acme, 6 sp., semi-aut.

Pipe machine, Jarecki, cap. 1" to 4".

Pipe machine, Cox, 2 1/2" to 8".

Pipe machine, Merrill, 2 1/2" to 12".

Press, No. 4 Toledo, o. b. l., 2 1/2" str.

Press, No. 5 Toledo, o. b. l., 3 1/2" str.

Press, No. 23 Stoll horning.

Press, No. 52 Bliss, s. s., 2 stroke.

Presses, Nos. 61 & 62 Bliss o. b., f. w.

Press, No. 73 Consolidated, o. b., 2 1/2" st.

Press, No. 74 Consolidated, o. b., 2 1/2" st.

Press, No. 65 Consolidated, geared.

Press, No. 56 Toledo, geared, m. d.

Punch, Cleve., 24" thrt., 1/2" x 1/2" m. d.

Punch, Cleve., 15" thrt., 1 1/2" x 1 1/2" m. d.

Punch, No. 6 L. & A. s. e., 1/2" x 1/2"

Punch, No. 34 Hilles & J., 1 1/2" x 1 1/2"

Punch, 72" Cleve., 1 1/2" x 1 1/2" m. d.

Punch, 48" Cleve., 1 1/2" x 1 1/2" m. d.

Saw, No. 3 Ryerson h. s. friction.

Screw mchs., No. 52 National-Acme.

Screw mchs., No. 55 National-Acme.

Screw mchs., No. 53 National-Acme.

Screw mchs., No. 73 National-Acme.

Screw machine, No. 2 Foster, pl. hd.

Screw machine, No. 2 W. & S., pl. hd.

Shaper, 16" Hollingworth, b. g. crank

Shaper, 20" Cincinnati, b. g. crank.

Shear, No. 5 Quickwork, cap. 1/2" pl.

Sh., No. 6 Quickwork, cap. 1/2" plates.

Sh., No. 20 Quickwork, cap. 12 gauge

Shear, No. 38 L. & A. alligator, 1 1/2".

Shear, 48" Bertsch, 18" gap, 10 ga. cap.

Shear, 48" Niagara, 18" gap, cap. 1/2".

Shear, squaring, 96" Stoll, 16 ga.

Shear, squaring, 96" Power, 20 ga.

Threader, Geometric, cap. 1/2" to 1 1/2".

Upsetter, 3" Acme.

Our warehouse is full of bargains. What have you for sale?

SECOND-HAND MACHINERY

FOR SALE BY

B. L. Saltzman,

524-526 W. Van Buren St., Chicago

MOTORS.

New 1/2 h. p., 1 phase, a. c., 110 volt.....	\$10.00.
New 1/2 h. p., 1 phase, rep. ind., 110/220 volt.....	32.50.
New 1 h. p., 1 phase, rep. ind., 110/220 volt.....	50.00.
New 1 h. p., 3 phase, 60 cycle.....	40.00.

LATHES.

18"x 8' Flather.	2x26 Pratt & Whitney, late model turret lathes, (3).
14"x 6' Sebastian.	
14"x 6' American.	

DRILL PRESSES.

20" Milwaukee.	3 spindle Sigourney.
20" Champion.	

PUNCH PRESSES.

Punch presses, all sizes from No. 1 to No. 5.

TINNERS' TOOLS.

Brake, 8 ft., 14 gauge; and other sizes.	Folders, all sizes. Square shears, hand and power.
------------------------------------------	-------------------------------------------------------

MISCELLANEOUS.

Bolt threader, Wells, single and double head.	Miller, No. 14 Kempsmith universal.
Boring mill, 30" Colburn.	Screw machine, No. 2 Foster.
Miller, No. 1 Kempsmith plain.	Screw machine, 1 1/2"x11 1/2" Brown & Sharpe automatic.
We have for sale a large line of woodworking and ironworking machinery. Write us today for what you need, as we have many bargains.	

FOR SALE BY

Brownell Machinery Co.,

11-13 Eddy St., Providence, R. I.

BORING MILLS.

24" Bullard rapid product., No. 6179.	No. 3A Universal horizontal.
24" Bullard rapid product., No. 6847.	

DRILLING MACHINES.

3' Reed-Prentice plain radials, s p.d., full enclosed head type.	3-spdl. Cincinnati (Avey).
25" Weigel pl. vert., fric. qk. return.	4-spdl. Barr, power fd. to each spdl.
23" Prentice Bros. heavy stationary.	5-spdl. Henry & Wright class "K."
	3-spdl. DEMCO bench No. 34-A.

GEAR CUTTERS.

No. 12 Brown & Sharpe, spur and bevel.	No. 13 Brown & S. spur & bevel.
No. 3 Brown & Sharpe, 26", spur.	Whiton, hand feed.
	No. 612 Fellows gear shaper.

GRINDERS.

10x72 Norton plain.	No. 3 Wilmarth & Morman surface.
No. 1 LeBlond tool and cutter	No. 12 B. & S. pl. cylindrical, 8x36.

MILLING MACHINES.

No. 4 Cincinnati plain.	No. 20 Ohio universal.
No. 13 Garvin plain, 42".	No. 2-B Rockford universal.
No. 25 Bilton plain BG	No. 6 Becker vertical.

PLANERS AND SHAPERS.

17"x17"x 4' Whitcomb.	36"x36"x22' Pond.
22"x22"x 5' Whitcomb.	60"x60"x12', 4 heads, m. d.
26"x30"x14' Whitcomb - Blaisdell, 2 heads.	16" Sellow tool room shaper.
	20" Kelly back geared crank shaper.

SCREW MACHINES.

No. 705 Rivett precision tur. lathe.	No. 2 Woods tilted turret lathe.
No. 2 Southworth hand screw machines, 1".	14" Pratt & Whitney back gear.
	No. 6-A Potter & Johnston, model 2.

MISCELLANEOUS.

Broach'g mch., No. 00 Lapointe, b'ch.	Saw bench, No. 650 Dover.
Drop press, 200 lbs. Standard auto.	Shaft straightener 3" Rockford, 10' b.
Oil separator, No. 2 American.	Slotter, 12" Bement-Miles.
Pipe machine, No. 7-B Jarecki.	Spot welder, type 140, 25 k.w. Toledo, 550 v., 60 cycle.
Saw, 43" Clement, band.	

SECOND-HAND MACHINERY

FOR SALE BY

Wayne Boiler Works, - **2519 Orleans St., Detroit, Mich.**
BOILERS.

Wickes water tube boilers, 350 h. p., practically new; will pass city or state inspection, 180 lbs. pressure, (4).

Wickes horizontal tubular boiler, 125 h. p.

10 h. p. vertical boilers, cheap, (2).

FOR SALE BY

Carbon Steel Company, Ft. 32nd St. & A. V. R. R., Pittsburgh, Pa.

The complete liquidation of the Carbon Steel Company makes available the following tools:

Drill, Pond Machine Co. 6' radial, belt drive.....	\$ 500.
Grinders, Esplan Lucas 1 1/2 x 13" spindle.....	each, 50
Lathes, Israel H. Johnson 30" x 18", bk. grd., 5-step cone drive, (2).....	ea., 350.
Lathe, 36" x 27" roll lathe, 60" face plate.....	500.
Shear, plate, R. D. Wood 2" x 128" hyd., 28" capacity.	
Shears, Mackintosh steam dr., 30 1/2" thr., 4" str., 24" shear blade, (2).....	ea., 300.
Shear, Mackintosh s. grd., 22" throat, 16" blade, 2" stroke.....	100.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,
1001-3-5 N. Sixth St., St. Louis, Mo.

LATHES.

9" x 12" Sundstrand.	26" x 13' Putnam, q. c., ar. for motor.
15" x 8' Sidney, q. c.	20" x 15' American, q. c.
16" x 6' American, q. c.	33" x 20' Draper, triple geared.
21" x 8' Sidney, q. c.	36" x 18' Prentice Bros., t. a.
26" x 16' Niles, plain change.	20" Pit lathe.

SHAPERS.

Smith & Mills, all sizes.

16" Flather, 4 speeds.

PLANERS.

24" x 24" x 6' Lodge & Davis.
 32" x 32" x 8' Whitcomb.

36" x 36" x 10' Flather.
 60" open-side Detrick & H., 3 heads.

GRINDERS.

10" x 36" Thompson universal.
 8" Heald rotary, with magnetic ck.
 10" x 32" Webster & Perks universal.
 No. 90 Greenfield universal.
 No. 1 Wilmarth & Morman univ.

No. 6 St. Louis.
 Yankee twist drill.
 12" x 42" Landis universal.
 30" Diamond face grinder.

DRILLING MACHINES.

20" Barnes.
 24" Aurora, sliding head.
 25" Barnes, stationary head.

34" sliding head.
 3' arm Mueller speed box drive.
 5' arm Prentice radial.

MILLERS.

No. 2 Kempnith plain.
 No. 4 Becker-Brainerd universal.
 No. 33 Kempnith manufacturing.
 No. 5-B Brown & Sharpe.

No. 2 Rockford full universal.
 No. 3 Knight vertical.
 Nos. 0 and 3 Burke bench millers.

MISCELLANEOUS.

Boring machine, horizontal, No. 2	Riveter, 24" Shepard.
Pawling & Harnischfeger.	Saw, No. 12 Higley.
Boring mill, No. 1 Binsse horiz.	Saw, No. 21 Higley.
Boring mill, 60" Bullard.	Saw, Lucas revolving, 31" blade.
Bulldozer, 75-ton Lourie hydraulic.	Screw machine, No. 6 Woods.
Engines, Corliss, 75 to 200 h. p.	Shear, squaring, 50" Excelsior.
Magnetic pulley, 24" x 36".	Shear, power, circle, Niagara.
Press, portable, hydraulic.	Spot welder, Toledo, 20 k. w.
Punch, No. 14 Williams-White, dbl.	Tapper, No. 2 Garvin.
Punch, No. 5 Long & Allst., 5" thr.	Tilted turret lathes, Wood, (3).
Punch, No. 7 Long & Allst., 4" thr.	Turret, 28" Gisholt latest.

SECOND-HAND MACHINERY FOR SALE BY

Marr-Galbreath Machinery Co.,

Bolt cutters, Acme 6", Landis 2 1/2".
Bolt cutter, 1 1/2" Acme, triple head.
Boring mill, 10" B. & S., post.
Boring mill, Betts horiz., 3 & 4" bars.
Boring mill, 10" Niles, m. d.
Boring mill, vertical, 72" Betts.
Boring mill, 84" Bullard "Maxi-mill," m. d., (2).
Boring mill, 52 & 42" King, sgl. pul.
Boring mill, 40" sgl. hd., light \$175.
Brake, 8" Chicago, for 18 gauge.
Brake, 8" double truss, hand.
Brake or press, 10" Robinson, toggle.
Bulldozers, Nos. 1, 2, 3, 4, 5, 26 & 27.
Bulldozers, Nos. 6, 8 & 9 W.-W.
Compressor, 1170 cu. ft. Chicago, belt or m. d. (A-1).
Compressor, 14" x 10" x 12", Ingersoll.
Cut-off machine, 1 1/2" hollow spindle.
Drills, radial, 3' & 3 1/2" Bickford, t. a.
Drills, radial, 3' Prentice; 3' Foadick.
Drill, radial, 2 1/2" Taylor-Fenn, sens.
Drills, 36" Hoefer; 24" Aurora, s. h.
Drill, 25" Barnes, sliding hd., b. g.
Drill, 20" Barnes, all gfd. (enclosed)
Drills, No. 2 Colburn, mfg. type. (4).
Drill, Allen, 20" sensitive, 4-spd.
Drill, heavy duty, 24" Footle-Burt.
Exhausters, No. 8 Buffalo; No. 2 Champion.
Exhausters, No. 28 Sturtevant, dbl.
Forging machines, 1 1/2, 2, 2 1/2, 3 & 4".
Gear hobber, No. 12 Barber Colman.
Gear & pinion cutt., No. 2 Sloan & C.
Grinder, No. 2 Stenotype, double end, with 2 magnetic chucks 7" x 9".
Grinder, Yankee drill, "A", dbl. end.
Hack saws, 4" 6" & 8", belted or m. d.
Hammers, 80 & 100 lb. Bradley helve.
Hammer, 600 lb. Bement, sgl. leg st.
Hammers, steam drop, 1500, 3000 lb.
Hammers, at. drop, 5000, 2500 lbs.
Hot saw & burring machine, Acme.
Keyseater, No. 1 Baker, for motor.
Lathe, gap, 36/60" x 12/20" Harringt'n.
Lathe, 36" x 32" Am., grd. hd., m. d.
Lathe, 36" x 16" American, g. h. t. a., a. c. motor. (99¢)
Lathe, 30" x 14" L. & A., q. c. g., t. a.
Lathes, 25" x 12" LeBlond, q. c. g. t. a.
Lathes, 20" x 10" Schellenbach, gd. hd.
Lathe, 18" x 10" Porter, s. b. g., c. r.
Lathe, 18" x 8 1/2" Hendey, pl. change.
Lathes, 18" x 10" L. & S. & LeBlond.
Lathe, 16" x 8" Bradford, pl. change.
Lathe, 14" x 6" Monarch, q. c. g., t. a.
Lathe, speed, 11" x 4" Prentiss, t-rest.
Miller, bench, No. 1 Burke, hand.

127 Water St., Pittsburgh, Pa.

Miller, vertical, No. 2 Brown & Sharpe, gear box.
Miller, No. 3 1/2 Fox, hand, 24" x 8" x 14 1/2".
Miller, No. 0 1/2 Cin. pl., 18" x 6" x 15".
Miller, No. 1 1/2 Rockford, plain, 24" x 7 1/2" x 19".
Miller, No. 3 Cincinnati, plain.
Miller, No. 3 H LeBlond, pl. ind. hd.
Miller, No. 1 1/2 Hendey universal, vertical attachment.
Miller, No. 2 Kempsmith universal.
Miller, slab, 18" x 18" x 8" B. & S.
Motor, 10 h. p., 110 v., d. c., 1080 rev.
Nut tapper, 1/2" Acme 6-sp. semi-auto.
Pipe machine, 6" Williams, mtr. dr.
Pipe mchs., 4" & 6" Oster, belt dr.
Planer, 60 x 60" x 12" Pond, 3 hds., m. d.
Planer, 48" x 48" x 16" D. & H. open-side, 3 heads.
Planer, 42" x 42" x 12" Betts, 1 head.
Planer, 42" x 36" x 20" Cin'ti, 4 heads.
Planer, 30" x 30" x 8" Niles, hy., 1 hd.
Planer, 28" x 28" x 6" Gale, 1 head.
Planer, 24" x 24" x 5" New H., 1 hd.
Press or brake, 10" Robinson, toggle.
Press, No. 27 Bliss, horning, b. g.
Presses, No. 7 1/2 Bliss, tie rod 6" st., s. b. g., m. d., (2).
Presses, No. 61 & 62 Bliss, plain.
Presses for 3" horn, pl., 1 1/2" stroke.
Press, No. 56 Toledo, pl. trim., 3" str.
Press, No. 11 Perkins, pl. trim., 4" str.
Punch, Cleveland 7" tht., cap. 1 1/2" x 3 1/2".
Punch & shear, H. & J., 72" tht., cap. 1 1/2" x 1 1/2", motor drive.
Punch & shear, Cleveland. 48" tht., cap. 1 1/2" x 1", motor drive.
Riveter, 1/2" Shuster, style A.
Rivet hammers, 3-A, 4-A, 5-A, hi. sp.
Rolls, bending, 16" H. & J., cap. 1", extension for 24", with motors 220 v., d. c. (near new).
Saw, No. 11 1/2 Higley, cap. 4" blade.
Saw, Gorton, size 2B internal tooth.
Shaper, 21" American, b. g., crank.
Shaper, 20" Cin'ti, b. g., crank.
Shaper, crank, 17" Smith & M., s. g.
Shaper, 28" Hendey, pillar type.
Shaper, 18" Barker, crank.
Shear, 60" x 16 ga. 18" gap, power.
Shears, Quickwork No. 8 & 6, m. d.
Shear, rotary, 1 1/2" Lennox, 8" gap.
Shear, plate, 9" x 1 1/2", cap. 15", m. d.
Shears, plate, 10" & 7" x 1 1/2" L. & A.
Shear, 124" x 1 1/2" 24" gap, m. d.
Slotter, 15" - 18" Dill, a. c. mtr.
Turret lathe, No. 1 Bardons & Oliver.
Turret lathes, Libby, 18", 22" & 26".

We Buy, Sell and Exchange.

WHEN YOU INQUIRE of advertisers won't you kindly tell them where you saw it? Just say "Hitchcock's List;" that will be sufficient. They like to know what produces their inquiries, and the publisher is very anxious to have them know it.

SECOND-HAND MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Bending rolls, 12' Kling, motor dr.,
15" & 11" dia. rolls, cap. 4" plate.
Drill, 32" Aurora, motor driven, tap-
ping attachment.
Grinder, 6" x 32" Norton plain.
Hammer, 100 lb. Massillon, steam.
Lathe, 22" x 11' Lehmann, geared
head, taper attachment.
Lathe, 24" x 12' Schumacher & Boye.
Lathe, 26" x 21' Whitcomb-B., mtr. dr.
Miller, No. 2 Cincinnati plain, gear-
ed head, single pulley drive.
Miller, No. 3-H LeBlond plain.
Miller, No. 3-B Hendey plain.
Miller, No. 4 LeBlond plain, heavy
duty.
Miller, No. 2 Cincinnati universal.
Miller, No. 2 Rockford universal.
Miller, No. 3 Kempnath universal.
Milling and drilling machine, No. 2
Knight vertical.
Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Eaton-Cole & Burn-
ham and Jarecki makes, belt or
motor driven, complete stock.
Presses, Nos. 18, 19 and 20 Bliss.

Planer, 36" x 36" x 12" Woodward &
Powell, motor driven, 3 heads.
Planer, 34" x 54" x 14" Pond Machine
Tool Co., two heads.
Press, No. 54 Toledo gr. str. side.
Punch, No. 2 H. & J., sgl. end, 30"
thrt., motor dr., cap. 1 1/2" thru 1"
Punch, Rock River, single end, 42"
thrt., motor dr., cap. 1 1/2" thru 1"
Punch and coping machine, 36" cap.,
Long & A. type B, motor driven.
Punch and shear, No. 3 Hilles & J.,
dbl. end, motor dr.; punch end,
42" thrt., cap. 1 1/2" thru 1"; shearing
end, 36" thrt., cap. 1" plate, 2 1/2"
round, 7" x 1 1/2" flat, 5" x 5" x 8" angle.
Radial drill, 36" Gang.
Shapers, 12", 14", 16", 21" and 24"
stroke, assorted makes.
Shear, Ryerson rotary bevel, cap. 4"
plate.
Trimming press, No. 754 Bliss,
straight side, with side shear at-
tachment.
Turret lathe, No. 64 Bardons &
Oliver, wire feed, cabinet base.

FOR SALE BY

Norton-Broadway Machinery Co., 236-38 Broadway, Cincinnati, O.

LATHES.

12" x 21" x 8' Willard, gap, new. \$ 525.	24" x 12' Monarch, q. c., nearly new \$1250.
16" x 6' Columbus, q. c., prac. new 295.	26" x 14' Putnam, s. q. c., taper, ex. heavy duty. 1250.
16" x 6' Cincinnati, q. c. 275.	
19" x 6' Fay & Scott, l. c. 195.	
20" x 10' Bradford, quick change taper, late type 850.	24" x 24' Niles, cone pulley.
24" x 12' American, q. c., taper. 900.	26" x 26' Niles, cone pulley.

MILLING MACHINES.

2-B Brown & S., sgl. pulley... \$ 775.	No. 5 Brown & Sharpe plain... \$ 650.
No. 3 Brown & Sharpe plain.. 500.	No. 2 Cincinnati, old st. univ. 400.

DRILLS.

24" Hofer, 2-spindle..... \$ 275.	28" Aurora, tapping attach..... \$ 285.
32" Aurora, sliding head..... 250.	30" Prentice radial..... 450.
28" Bickford, sliding head..... 300.	5' Niles universal radial.
28" Aurora, sliding head..... 250.	6' Niles univ. radial, 220 d. c. motor.

PLANERS.

16" x 18" x 48" Hendey..... \$ 275.	30" x 12' Gray, 1 head..... \$ 850.
36" x 12' Woodward & P., 1 hd. 750.	32" x 32" x 20' American, 2 hds..... 850.
36" x 36" x 8' Flather, 2 heads.. 850.	42" x 42" x 26' Cincinnati, 2 hds..... 2500.

BORING MILLS.

64" Niles, vertical, 2 heads..... \$1550.	36" Niles, vert., 2 heads..... \$ 750.
42" Bullard, vert., 2 heads..... 900.	42" Gisholt, 2 heads, gear box, as is..... 500.
42" Colburn, vert., 2 heads..... 900.	

MISCELLANEOUS.

Air compressors.	Punches and shears, Nos. 4, 5 & 7 Long & Allstatter.
Grinder, Brown & Sharpe, surface.	Turret lathe, 24" Gisholt.
Grinder, Brown & S. tool & cutte.	Turret lathe, 26" Gisholt.
Hammer, steam, & furnace, 1100 lb.	Turret lathe, No. 6 Warner & S.
Erie, sgl. frame, nearly new \$1100.	Wheel press, 100-ton, No. 30 Indus- trial Iron Works.
Punch, style A Long & Allstatter.	
Presses, inc., hornung pres., etc., (10).	

SECOND-HAND MACHINERY

FOR SALE BY

A. C. Borgman, P. O. Box 3113, Bridgeport, Conn.
Selling out. 100 good Machine Tools to be sold. Here are a few of them:

LATHES.

14" x 8' Monarch.
16" x 8' Hendey.
16" x 8' Lodge & Shipley.
20" x 8' LeBlond (2).
21" x 8' heavy duty turning lathes.
26" x 26" Pratt & W. engine lathe.
32" x 12' Bridgeford, geared head.
38" x 24" Pond engine lathe.

MISCELLANEOUS.

Boring mill, Beaman & Smith.
Drill presses, 20", 24", 32" & 42".
Drills, multiple, No. 13 P. & W. (2).
Drill, radial, 24" Mueller plain.
Grinders, 12" x 24" Modern cyl., (2).
Grinder, 10" x 80" Norton cylindrical.
Millers, No. 3 Cincinnati plain, (2).
Thread millers, No. 3C Lees-B., (2).

Send for complete list.

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York
Located at our various factories

LATHES.

12" x 8' Reed, taper.
14" x 8' P. & W., taper.
24" x 24" Niles.
28" x 18" Pond, 220 volt, d. c. motor.
28" x 12' Pond.
36" x 12' Pond, t. g., 220 v., d. c. mtr.
36" x 17' Pond, taper, 220 v., l. c. mtr.
42" x 20" Niles, t. g.
48" x 28" Niles, t. g.
50" x 17" Niles, old style.

TURRET LATHES

2", 24" and 3" P. & W.
2" x 24" W. & S. hollow hex.
21" and 28" Pond rigid turrets.
28" & 34" Gisholts.
32" Conradson-American turret.

PLANERS.

20" x 20" x 6' Bement.
24" x 24" x 6' Powell.
24" x 24" x 6', 8' and 10' Whitcomb-B.
36" x 36" x 6' Gray.
30" x 30" x 6' & 10' Pond, 2 heads.
30" x 30" x 6' to 12' Pond, reversing motors.
36" x 36" x 10' to 16' Niles.
36" x 36" x 12' to 16' Pond, reversing motors.
42" x 42" x 14' Bement.
42" x 42" x 26' Pond, reversing motor.
48" x 48" x 16' Pond, reversing motor.
48" x 48" x 20' Bement, belt.
54" x 36" x 10' Bement, belt.
50" x 36" x 22' Pond, reversing motor.
54" x 54" x 22' Pond, rev. motor.
60" x 60" x 20' & 24' Niles, belt.
72" x 72" x 12' Bement, belt.
72" x 60" x 14' Bement, reversing mtr.
10' x 10' x 36' Betts, 220 volt, d. c. motor through belts.

MILLERS AND GEAR CUTTERS.

No. 3-B plain, 220 v., d. c. motor, Brown & Sharpe.
No. 4 plain, cone pulley, B. & S.
No. 5 plain, cone pulley, B. & S.
No. 4-48" Newark, 220 v., d. c. mtr.
6x48 to 132" P. & W. old style thread millers.
15" Gleason bevel gear generator.
No. 5 vertical, cone pulley, B. & S.
36" to 60" B. & S. spur gear cutters.

DRILLING MACHINES.

32" Aurora, tapping attachment.
40" Aurora, tapping attachment.
34" Morris speed box radial.
5" Niles full universal, speed box.
6" Pond, 220 volt, d. c. motor.
6" Niles full universal, speed box.
12-spindle No. 13 P. & W. multiple.

BORING MACHINES.

36-44" Niles side hd. mill, 220 v., d. c.
51" Niles mill, with turret head.
60" Bement b. & t. mill.
10' Niles mill, 220 v., d. c.
48, 5 and 64" Niles floor borers.
24 to 48" horiz. bor. and drill. mches.

MISCELLANEOUS.

Air compressors, 324' and 835', steam drive.
Crane, 3-ton, 19' span, Niles 3-motor, 220 volt, d. c.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.
Generator set, 100 k. w., 22 volt, d. c., direct connected to engine.
Heater, 600 h.p. Cochrane, fd. water.
Grinder, Mummert-Dixon portable radial, 220 volt d. c. motor.
Grinder, No. 6 Bryant hole gr.
Grinder, P. & W. thread miller cutter.
Pumps, 200 to 1000 gal., steam drive.
Slotter, 18" Putnam, 220 volt, d. c. motor.

SECOND-HAND MACHINERY

FOR SALE BY

The Patterson Tool & Supply Co., - - - **Dayton, Ohio**

Die testing press, Rex, new, ... \$ 75.	Mill, No. 25 Bilton plain, new, \$ 400.
Drill press, 2-sp. Demco, new, 250.	Mill, No. 6 Whitney hand, used 50.
Furnace, No. 5-A Frank't used 50.	Mill, No. 0 National hand, used 20.
Grinder, wet, 16" W. & M., new 75.	Screw machine, 140 Wells, new, 275.
Lathe, 12"x5' Monarch, q.c. new 350.	Screw mch. No. 3 Superior, used 200.

FOR SALE BY

The H. A. Smith Machinery Co., - - - **Syracuse, N. Y.**

BALANCING MACHINE.

Rockford style B, motor driven.

BORING MILLS.

Gisholt 36" vertical, with combination chuck in table.

Gisholt 42" vertical, 2 swivel heads.

Gisholt horizontal boring, drilling and milling machine, 4" bar.

Niles horizontal boring, drilling and milling machine, 4 1/2" bar, bed plate 10' x 12', and with 44" circular chucking table.

DRILL PRESSES.

Allen 4-spindle ball bearing.

Barr 6-spindle, 4" capacity.

Snyder 30", bk. grd., sliding head.

Barnes 34", bk. grd., sliding head.

Snyder 36", b.g., slid. hd., tap. attach.

RADIAL DRILLS.

Fosdick 3 1/2' heavy duty, round column.

Niles 3 1/2' universal.

Fosdick 5' universal, motor drive.

GEAR CUTTERS.

26" Brown & Sharpe No. 3.

48" Gould & Eberhardt.

Fellows No. 62 gear shaper, motor drive.

GRINDERS.

No. 10 Brown & Sharpe plain.

12x36 Modern, new.

16x72 Landis plain.

12x40 Modern plain.

16x52 Landis plain.

UNIVERSAL TOOL AND CUTTER GRINDERS.

Bath No. 2 1/2 universal.

Wells No. 190 universal.

Brown & Sharpe No. 3 universal.

INTERNAL GRINDERS.

Bryant No. 10-A.

Brown & Sharpe No. 23.

Madison Gisholt automobile cylinder grinder.

KEYSEATING

Davis No. 2.

MACHINES.

Baker Brothers No. 0.

LATHES.

12x6 Seneca Falls, with pan & taper.

12x6 Seneca Falls style E.

14x24x5 1/2' bed Barnes, gap.

21x12 Porter, with increase swing att.

PORTER-CABLE LATHES.

Porter-Cable, with complete piston turning equipment.

MILLING MACHINES.

No. 1-B Kearney & Trecker plain.

No. 3-B Kearney & Trecker univ.

No. 13-B Brown & S. production.

Cincinnati No. 3 plain.

Cincinnati No. 4 plain.

No. 3 B. & S. vert., all power fds.

Brown & Sharpe No. 5 vertical.

PLANERS.

24"x24"x 6' Chandler.

36"x26"x 8' Niles.

26"x26"x10' Whitcomb.

36"x36"x24' Pond, 4 heads.

74"x54"x24' Pond, 4 heads.

AUTOMATIC SCREW MACHINES.

No. 0G Brown & Sharpe automatic.

No. 0G Brown & Sharpe automatic.

Cleveland 4 1/2" automatic.

Cleveland 4 1/2" automatic.

21" Gisholt turret lathes, \$300 to \$500, according to condition, (3).

No. 2-A W. & S. hollow hex. turret lathes, with chucking equipment.

MISCELLANEOUS.

Cutting-off machine, Hurlbut-Rogers, 4".

Die slotting machine, Garvin.

Grinder, Sellers auto. twist drill.

Tapping machine, Garvin No. 2.

Tapping machine, Garvin No. 2X.

SECOND-HAND MACHINERY

FOR SALE BY

Louis E. Emerman & Company, 1761 Elston Ave., Chicago, Ill.

Bending brake, Chicago, capacity $\frac{1}{2}$ "x8', motor driven.....	\$ 850.
Bending rolls, Wickes Bros., capacity, $\frac{1}{2}$ "x10'.....	2875.
Drill presses, Kern 42", brand new.....	575.
Drill, multiple, Natco No. 30, 20"x40" head, 48 spindles.....	1150.
Drill, multiple, Natco No. 32, 20"x54" head, 42-1 $\frac{1}{2}$ " spindles.....	1250.
Gear cutter, Brown & Sharpe No. 4, 36" capacity.....	450.
Gear generator, Gleason 11".....	575.
Gear hobber, Newark No. 2.....	350.
Grinder, automobile cylinder, Baxter D. Whitney No. 23.....	575.
Hack saw, Peerless 9"x9", motor driven.....	325.
Lathes, Gisholt 20" automatic turret.....	1750.
Milling machine, Valley City No. 1 $\frac{1}{2}$ universal, complete.....	775.
Planer, 24"x34"x8' Gray, single head.....	775.
Planer, 84"x84"x32' Putnam, 4 heads, with motor.....	4250.
Punch and shear, Williams-White No. 14, double end.....	1250.
Radial drills, Bickford 2 $\frac{1}{2}$ ", single pulley drive.....	550.
Squaring shear, Long & Allstatter No. 4, $\frac{1}{2}$ " plate.....	850.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 3 Ingersoll vertical.	No. 2 Kemp Smith universal.
No. 4 LeBlond universal.	No. 3 Kemp Smith plain.
No. 3-H LeBlond universal.	Gooley & Edlund production miller.

SHAPERS.

20" Gould & Eberhardt b. g. crank.	16" Steptoe b. g. crank.
18" Hollingworth b. g. crank.	15" American crank.
17" Smith & Mills b. g. crank.	14" Springfield crank.

LATHES.

32"x10' LeBlond, qk. change gear.	16"x10' Kern, Cincinnati, qu. ch. gr.
26"x10' Niles, quick change gear.	16"x 8' Flather, quick change gear.
24"x12' South Bend, taper att.	16"x 6' Monarch, q. c. g., taper att.
20"x10' American, q. c. g., crank shaft.	13"x11' Sebastian, plain change gr.
20"x10' Boye & Emmes, qk. ch. gr.	20" to 24" Spinning lathes.

BORING MILLS, RADIALS, DRILLS.

26" Bullard rapid production.	25" Kokomo high speed.
36" Fosdick radial, gear box.	2, 3, 4, 5 & 6 spdl. Aveys, $\frac{1}{2}$, $\frac{3}{4}$, 1" cap.
Single spindle holehog.	1 & 2 spdl. Barnes h.sp., camel back.

BOLT CUTTERS.

1" Landis, double head.	$\frac{1}{4}$ " Geometric, single head.
1 $\frac{1}{2}$ " Geometric, single head.	2" Murchey, double head.

PRESSES.

No. 1 Bliss 3 $\frac{1}{2}$ " & 7" toggle.	No. 75 Toledo straight side.
No. 7A Niagara b. g. inclinable.	No. 6 Bliss straight side, solid back.
No. 5 $\frac{1}{2}$ Walsh inclinable.	No. 3 Blake & Johnson arch presses.
No. 4 Rockford inclinable.	

GRINDERS.

No. 2 Brown & Sharpe universal.	No. 3 Wilmarth & M., magnetic cks.
No. 1 Brown & Sharpe universal.	Nos. 2 & 3 La Salle plain.
No. 23 Brown & Sharpe cylinder.	Fitchburg, Landis, Greenfield, etc.
No. 11 Brown & Sharpe plain.	Besly, Gardner 18", 26", 40" disc.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, dbl. spindle, (3).	Nos. 1, 2, 3 & 5 Bardons & Oliver.
Greenlee, $\frac{3}{4}$ " capacity.	1" to 1 $\frac{1}{2}$ " Acme and Warner & S.
Nos. 0, 1, 2, 3, 4 & 6 Foster.	No. 6 Foster power, long. & cross fd.

MISCELLANEOUS.

Chucks, 300 new and used, all sizes.	Rolls, 10"x4"; 7"x36" steel corrugat'g.
Drill presses, large stock.	Shears, squaring and circle.
Hammer, 60 lb. Bradley.	Spot welders, Toledo and Thomps'n.
Keyseater, No. 2 Mitts & Merrill.	
Keyseaters, riveters, tapping machines, tapping chucks, broaches, benders, vises, time clocks, cutters, reamers, etc., etc., at money-saving prices.	

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers, 21 Sylvan Ave., New Haven, Conn.

"Connecticut Machinery Merchants"

MILLING MACHINES.

25—Gooley & Edlund "Briggs type A" high duty production milling machines, complete with all regular equipment, practically brand new, price \$175 each, f. o. b. cars, New Haven, Conn.

Send for our latest 52-page Catalog No. 101.

FOR SALE BY

The Reeve-Fritts Company, 37 So. Desplaines St., Chicago, Ill.

Drill, 10" Barnes, friction.

Drill, 20" Rockford, b. g., p. f.

Drill, 24" C. & O. radial.

Lathe, 10"x8" Monarch, q. c. g.

Lathe, 14"x8" Monarch, q. c. g.

Lathe, 14"x8" Flather, q. c. g.

Lathe, 14"x5" Fay & Scott, \$225.

Lathe, 14"x8" Smurr & Kamen, \$225.

D. . .

Lathe, 15"x6" Sebastian, \$225.

Lathe, 16"x7" Pratt & Whitney, \$175.

Lathe, 16"x8" LeBlond, \$200.

Lathe, 16" Drees Fox.

Planer, 22"x22"x5" Powell.

Press, foot, No. 2 Stoll.

Profiler, 2-spindle Leland.

Punch and shear, No. 23 Marvel.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

9"x14" Porter-Cable, (6).

14"x 6" Prentice, l. c. g., (2).

14"x 6" Bradford, q. c.

14"x 6" Carroll-Jamieson, (9).

14"x 6" Flather, l. c. g.

14"x 6" Reed, l. c. g., (5).

14"x 6" Rockford, l. c. g.

14"x 8" Monarch, l. c. g., taper.

16"x 8" Bradford, l. c. g.

17"x 8" LeBlond, q. c.

17"x10" LeBlond auto.

21"x11" LeBlond, all geared, (2).

21"x 8" LeBlond, q. c.

26"x10" LeBlond crankshaft, (2).

DRILLING MACHINES.

6" Sipp bench drill.

14" Allen, h. s.

26" Hoefler, st. h. d., (2).

No. 3 Avey, h. s.

36" American sens. radial.

No. 3 Haugh multiple.

MILLING MACHINES.

No. 0 Farwell q. c.

Briggs type A, (3).

No. 12 Brown & Sharpe.

No. 32 Kempsmith.

No. 14 Cincinnati plain.

No. 2 Brown & Sharpe plain.

No. 3 Hendey plain.

No. 4 LeBlond, a. g., plain.

48" Newton 2-spindle.

TURRET SCREW MACHINES.

1" Acme, p. h.

1/2 Cleveland auto., type B.

1 1/2" Defiance, f. h.

2" Milholland, f. h.

2x26 Pratt & Whitney, f. h.

2 1/2x26 Pratt & Whitney, a. c.

GRINDERS AND POLISHERS.

No. 1 LeBlond plain.

No. 1 Brown & Sharpe universal.

No. 1 Norton universal.

No. 2 Gardner disc grinder.

No. 24 Gardner vertical.

No. 70 Heald internal.

No. 80 Heald cylinder.

No. 210 Heald magnetic.

14x72 Landis plain.

20" Blount wet grinders, (2).

No. 4 Webster & Perks polishing.

Bennett & O'Connell dbl. sp. pol.

No. 23-B Valley City disc.

No. 220 Badger automatic.

MISCELLANEOUS.

Band saw, 6" Napier.

Broach, No. 2 LaPointe.

Cutting-off mch., 4" Huribut-Rogers.

Filer, No. 2 Cochrane & Bly.

Gear tester, bevel, Gleason.

Hammer, drop, No. 5 Williams-W.

Keyseater, No. 1 Davis.

Lapping mchs., Bethel-Player, (2).

Metal cutter, No. 1 Gray.

Press, No. 40 Perkins, o. b. i.

Shear, squaring, No. 852 Niagara.

Screw slotter, No. 1 National Acme.

Threader, 2-sp. Webster & Perks.

Tumbling barrels, No. 3-S Globe, (2).

SECOND-HAND MACHINERY

FOR SALE BY

Bennett Machinery Co.,

Drill, radial, 3' Bickford plain.
Lathe, 24"x10" Draper.
Lathe, 26"x10" McCabe.
Lathe, 32"x35" Bement Miles.
Lathe, 40"x13" Putnam, triple grd.

30 Church St., New York City

Lathe, 16"x 8' Monarch, q. c., t. a.
Pipe machine, 6" Curtis & Curtis.
Planer, 54"x12' Pond, 4 heads.
Planer, plate, 18' Niles.
Shaper, 15" Pratt & Whitney.

FOR SALE BY

Brown Machinery Co.,

Boring mill, No. 10 Beaman-S., hor.
Boring mill, 60" Sellers, 2 heads.
Boring mill, 42" Bullard.
Brake, D. & K. 8', 16 ga. cap.
Die sinker, No. 3 Jackson.
Drill, 24" Aurora, sl. hd., b. g., p. f.
Drill, 24" Cincinnati, sl. hd., b. g., p. f.
Drill, 26-spindle Baush, No. 3.
Drill, No. 1 Barnes hor. radial.
Drills, rad., 3' American & Mueller.
Gear cutter, 30" Whiton.
Gear hobber, No. 1 Farwell.
Gear shaper, Fellows 36".
Grinders, No. 6 & No. 14 Besly.
Grinders, 5x18 Ott; 10x36" Norton.
Grinder, No. 12 Brown & Sharpe.
Hammer, Dupont, size D.
Lathes, 14", 16", 20", 26" Walcott,
d. b. g., q. c. g.
Lathe, 15"x10" LeBlond.
Lathe, 17"x 6" Cincinnati, semi q. c.
Lathe, 20"x8" Reed.

2323 N. 9th St., St. Louis, Mo.

Lathe, 26"x14" Hamilton.
Miller, 1-B Fox horizontal.
Miller, No. 4 Hendey, b. g.
Miller, No. 3 Becker.
Miller, No. 5B Becker-B.
Miller, 8", 12" P. & W., auto.
Planer, 30"x30"x8" Pease.
Planer, 54"x54"x12" Pond.
Press, embossing, Roover.
Presses, L. & J. Nos. 1, 2, 3.
Press, toggle, Robinson 10".
Profilers, two-spindle, Putnam,
Reed-Prentice.
Punch, Ryerson-Kling rapid action,
18" throat, 1/2 in. f.
Roll, plate straightening, No. 0
Hilles & Jones 4' 8" x 1".
Shear, 8' Niagara, foot power.
Shears, 134 Marshalltown rotary, 1".
Shear, No. 13 Pettin, rotary, 14 ga.
Stake riveter & punch, No. 3 Hilles
& Jones, 5' throat.

Many other bargains. Write us about your requirements.

FOR SALE BY

McCoy-Brandt Machinery Co.,

Air compressors, belted, 242 cu. ft.
Air compressors, steam, 903, 2052
and 2200 cu. ft.
Bolt cutter, 24" Landis, single head.
Boring mill, 10' Niles, 2 heads.
Boring mills, 42" Bullard New Era.
Bulldozers, Nos. 2, 3, 4, 6 and 12.
Bulldozers, Nos. 29 & 30 W. W.
Drill, 20" Buffalo, b. g.
Drills, radial, 5' Prentice, m. d.
Flanging mch., McCabe, cap. 3" plate.
Forging machines, 2", 3", 4" and 5".
Grinder, Gisholt universal tool.
Grinder, Diamond 36", wet tool.
Grinder, 10x32 Ott universal.
Grinder, 12x48 Cincinnati universal.
Grinder, No. 4 Gardner double disc.
Lathes, 14"x 6" Hendey, grd. hd., m. d.
Lathe, 17"x12" LeBlond, g. h., t. a.
Lathe, 19"x14" LeBlond, g. h., turn.
Lathe, 20"x10" Monarch, q. c. g.
Lathe, 24"x26" American, m. d.
Lathes, 26"x12" Putnam, cone.
Lathe, 26"x12" Wickes, q. c. g., new.
Lathe, 50"x25" Bement, triple grd.
Millers, horiz. Nos. 2 & 5 Cincinnati.

210-14 Penn Ave., Pittsburgh, Pa.

Miller, vertical, No. 0 Bickett.
Millers, vertical, No. 3 Brown &
Sharpe, motor drive.
Millers, Nos. 2, 5C & 6 Becker vert.
Motors, 5 & 7 1/2 h. p., a. c.
Nut tappers, 10 spindle, rotary, cap.
1 1/2" nuts.
Pipe machines, 12", 10", 8", 4" & 2".
Planer, 30"x30"x8" Flatner, 1 head.
Planer, 84"x84"x17" Pond, 3 hds.
Planer, 120"x25" Sellers, 4 hds. m. d.
Press, No. 68 Bliss, double acting.
Press, No. 51 Bliss, s. s., 1 1/2" stroke.
Punch, dbl. end, 20" throats, 1 1/2" x 1".
Rolls, bending, 16" x 8" Wickes, m. d.
Rolls, bending, 12" x 8" H. & J.
Rolls, bending, 10" x 4", horizontal.
Shaper, 16" American, b. g., crank.
Shaper, 20" Steptoe, b. g. crank.
Shear, angle, 6" x 6" L. & A. dbl., m. d.
Shear, plate, 126" x 1", m. d.
Shears, alligator, cap. 3" & 4".
Shears, guil., cap. 2 1/2", 2" & 1".
Shear, rotary, cap. 1", with circ. att.
Shear, rotary bevel, cap. 1", m. d.
Turret lathe, 18" Libby, like new.

SECOND-HAND MACHINERY

FOR SALE BY

Allegheny Gear Works Co.,

Chemical and heat treating equip.
Derricks, mast 95', boom 80'; mast
80'; boom 60'.
Drill press, 24" No. 2-D Colburn.
Drop hammers, 3500, 3000, 2500, 2000,
1500, 1200, 1000, 800 lbs.
Friction saw, No. 3 Ryerson.
Forging hammers, 2500, 1500, 1100, 800.
Gear cutters, 36" No. 3-A Cincinnati.
Gear cutters, 18" No. 13 Brown & S.
Gear gen's, bevel, 11", 15" Gleason.
Gear hobber, 12", dia. Barber C.
Gear shapers, Nos. 6 & 612 Fellows

507 Liberty Ave., Pittsburgh, Pa.

Gear tester, spur, No. 1 Brown & S.
Gear tester, bevel, 18" Gleason.
Grinder, deep, No. 20 Bryant.
Grinder, 12"x66" Landis.
Grinder, internal, No. 70 Heald.
Lathes, 26"x16' 6", 26"x10'.
Lathes, 32"x14', 26"x8' Bridgeford.
Planer, 36"x36"x12' Bickett.
Radial drill, 5' Reed Prentice.
Shapers, 28, 25, 24, 20, 16, 14 & 12".
Trimming presses.
Turret lathe, 24" Gisholt.
Motors, hangers, shafting.

FOR SALE BY

Fitzsimmons & Cole Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air compressor, 10x12, 164 cu. ft.
Angle bending rolls, 4"x4"x4".
Bending rolls, 12"x4" Kling, m. d.
Bolt cutters, 14", 2" & 24" Landis.
Borer, car wheel, 42" N. B. P.
Boring mill, 60" Betts, 2 hds., m. d.
Boring mills, 42" and 52" King.
Brake, 10' Chicago, No. 12 gauge.
Cold saw, 18" Higley.
Coping machine, 24" L. & A.
Drill, radial, 4' Bickford, s.p.d., t.a.
Hammers, forging, 600 to 6000 lbs.
Lathe, 16"x6" South Bend, q. c. g.

Lathe, 30"x34" Pittsburgh, q.c.g., m.d.
Pipe machines, 2" to 12".
Planers, 30" to 120".
Planer, rotary, 48" N. B. P.
Riveter, 80-ton Hanna, 102" reach.
Shaper, 24" Cincinnati, b. d.
Shaper, 24" G. & E., b. g.
Shear, No. 2 Lennox rotary bevel.
Shear, 10"x4" United, m. d.
Shear, 8"x1" Bertsch.
Shear, 8"x1" Morgan.
Shear, 24" United, guillotine.
Testing machine, 100,000 lbs. Reihle.

FOR SALE BY

Jones Machine Tool Co.,

528-532 E. Front St., Cincinnati, O.

LATHES.

14"x 6' Bradford, quick change.
14"x 6' Monarch, qck. chg., s. p.,
geared head, (2).
16"x 6' Lodge & Shipley, qck. chg.
16"x 8' LeBlond quick change.

20"x12' Greaves Klusman, q. c.
24"x16' American, q. c., cone drive.
30"x12' H. S. & Gamble, q. c.
30"x16' Reed, l. c., cone drive.

MILLERS.

No. 14 B. & S. plain, (3).
No. 2 Hendey plain.

No. 2 Kemp Smith plain.
U. S. hand miller.

PLANERS.

36"x36"x8' Flather, 2 heads.
30"x 8' Gray, 2 heads.

32"x20' American, 2 heads.
42"x36"x26' Cincinnati, 2 heads.

PRESSES.

Nos. 2 & 3 Toledo, o. b. inc.
No. 2 Robinson, o. b.
No. 3 L. & A. double end punch.

No. 18 Bliss, open back inc.
No. 20 Bliss, o. b. inc., (10).
Hornig press, Swain.

SHAPERS.

14" Whipp, plain crank.
16" Barker, plain crank.
20" Steptoe, back geared crank.

21" American, back geared crank.
24" Barker, back geared crank.
24" Smith & Mills, bk. grd. crank.

SQUARE SHEARS.

36" No. 236 Niagara, power.
96" P. S. & W. foot power, 20 ga.

96" Robinson, power, 14 gauge.
30" Bertsch, foot power.

MISCELLANEOUS.

Bolt cutters, 4" Acme.
Drill presses, 24" Sibley & Ware (4).

Grinder, No. 60 Heald, cylinder.
Radial, 4' Bickford s. p. drive.

SECOND-HAND MACHINERY

FOR SALE BY

W. P. Little Co.,

West 9th & Front Sts., Cleveland, Ohio

RADIAL DRILLS.

3' Prentice, plain.

4' W. E. Gang, plain.

MULTIPLE DRILLING MACHINES.

20" 4-spindle Rockford, with automatic approach and return feed, (2).

LATHES.

14"x 6' LeBlond, q. c. g., c. r.

16"x 6' Bradford, q. c. g., & t. a.

16"x 6' LeBlond, q. c. g., c. r.

18"x 8' Porter, d. b. g.

MILLING MACHINES.

No. 0 Kempsmith universal.

No. 1 Kempsmith pl., with div. hd.

18" Cincinnati b. g.

No. 2 Cincinnati pl., with div. hd.

No. 15 Brainard.

No. 6 Whitney hand.

PUNCH PRESSES.

No. 2 Bliss Stiles pattern.

No. 24 Cleveland horning.

No. 21 Bliss.

No. 87 Zeh & Hahnemann.

No. 14 Williams & White.

Z. & H. double acting cam drawing.

No. 3 Long & Allstater, dbl. end.

30" geared, arch.

S. G. 55 Ferracute double crank.

GRINDERS.

No. 6 Bryant internal.

No. 3 Modern universal.

No. 75 Heald internal.

No. 6 Rivett internal.

RADIAL TAPPING MACHINE.

1/2" Rickert & Shafer radial tapping machine, motor driven.

MISCELLANEOUS.

Bolt cutter, 2" Foote-Burt.

Keyseater, No. 0 Mitts & Merrill.

Bolt cutter, 2 1/2" National.

Slotter, 8", rotary table.

Boring machine, 30" Colburn vert.

Spinning lathe, 22" Prybil.

Boring mche., No. 3 Marvel cylinder.

Spinning lathe, 29" Prybil.

Hammer, 50 lb. Bradley upright.

Spline miller, 1/2" Pratt & Whitney.

Hammer, 250 lb. Morgan steam.

Turret, No. 2 Bardons & Oliver.

Weigel Double-Wheel "Trukaster"

Has heavy plates and axles.
Easiest running, strongest and
most durable double-wheel
caster made. Lasts three times
as long as others.

"Kwality Kaster"

(See illustration)

The strongest and most dura-
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or break. Swivels on steel
machined rollers.

Write for Price List

**THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO**



LIQUIDATION SALE

Holmes Automobile Company, Canton, O.

Equipment purchased new since 1917—

Used little and in good condition

- 3—Valve Grinders, Misc.
- 4—No. 6 Whitney Hand Millers.
- 3—No. 1 Kent-Owens Hand Millers.
- 2—No. 2 & No. B J. N. La Pointe Single Broaching Machines.
- 2—No. 3 Kempsmith Plain Millers.
- 1—No. 3H LeBlond Plain Miller.
- 1—No. 4 Cincinnati High Power Universal Miller.
- 2—20" Barnes Geared Drills, p. f., and Pumps.
- 2—24" Hoefer Sliding Head Drills, b. g., p. f., square tables.
- 2—23" Rockford Stationary Head Drills, b. g., p. f., round tables.
- 4—16" Henry & Wright class K, double spindle B. B. Drills.
- 2—24" Henry & Wright class A, single spindle B. B. Drills.
- 1—No. 17D Moline 4-spindle Hole Hog Drill, 20" swing.
- 4—4" Hammond B. B. Radial Drill with tappers.
- 2—No. 315 Baker High Duty Drilling Machines.
- 2—No. 2X Garvin Automatic Tappers.
- 1—No. 2 International Vertical Tapper.
- 2—No. 2 W. & S. Screw Machines, a. c., b. feed, p. f. turret.
- 1—No. 1 W. & S. Screw Machines, a. c., b. feed, p. f. turret.
- 2—1" Millholland Screw Machines, a. c., b. feed, h. f. turret.
- 1—1½" Millholland Screw Machine, a. c., b. feed, p. f. turret.
- 1—2" Garvin Screw Machine, a. c., b. feed, p. f. turret.
- 1—2" Cleveland automatic Screw Machine, Class B, latest type, h. s. drilling attachment, Serial 29694, 95%.
- 1—5A Potter & Johnston Automatic, serial 20679, 90%.
- 1—No. 33 New Britain Automatic 5-spindle, serial 6729.
- 2—No. 12 Barber-Colman Gear Hobbers, serial 933 and 1007.
- 5—9"x20" Porter & Cable Lathes.
- 1—24"x 8' Bridgeford Chucking Lathe, with hex. turret.
- 1—24"x12' LeBlond Eng. Lathe, raised in sand to 32", taper attachment.
- 1—16"x 6' Fulton Lathe, compound rest.
- 1—19"x 8' LeBlond H. D. Engine Lathe, q. c. g., compound rest.
- 1—20"x 8' Whitcomb-Blaisdell Lathe, q. c. g., compound rest.
- 1—15"x 6' Sidney Engine Lathe, p. f., turret on shears.
- 2—21" Gisholt Turret Lathes.
- 1—No. 14 Brown & Sharpe Plain Grinder.
- 1—No. 2 Bath Universal Grinder.
- 1—No. 103 Rivett Internal Grinder.
- 2—No. 60 Heald Internal Grinders.
- 1—14"x 6' Hendey Lathe, taper and draw-in attachments.
- 1—14"x 6' Hendey Lathe, plain.
- 1—10x10 Ingersoll-Rand Air Compressor, class ER-1.
- 1—42"x20"x20' Fixed Rail Slab Miller, Ingersoll.

Motors, 3 ph., 60 cyc., 220 v.; Electric Japan Oven 12"x20"x8' 6", with conveyor 70' centers; Hanna Yoke Riveter; Vises; Belting; and many other machines not mentioned.

Write or call at plant for prices and other information.

Private sale will continue until all equipment is sold.

Holmes Automobile Company Liquidation Dept., Canton, Ohio

RAILROAD SPECIALS

**New Combination Journal and Axle Turning Lathes
New & Used Nos. 2 & 3 Axle Lathes, Center Drive**

VERT. & HORIZ. BORING MILLS

- 1-30" Rogers & Hemphill, 1 turret hd.
- 2-36" Niles, 2 heads.
- 1-42" Baush, 2 heads.
- 1-52" Baush, 2 heads.
- 1-72" Pond, 2 heads.
- 1-10' Pond, 2 heads.
- 1-Binsse, 23 1/4" Bar.
- 2-Binsse, 3 1/8" Bar.
- 1-No. 2 Niles, 4" Bar.
- 1-6' Niles, 6" Bar.

CAR WHEEL BORERS

- 1-48" Niles, with Crane.
- 1-48" Putnam, with Crane.
- 1-48" Pond, with Crane.

CAR WHEEL LATHES

- 2-No. 2 Niles, center drive.
- 4-No. 3 Niles, center drive.
- 1-No. 3 Putnam, center drive.
- 4-Locomotive Axle Lathes.
- 2-Comb. Axle & Jour. Lathes.
- 1-42" Niles Car Wheel Lathe.
- 4-3 1/2"x60" Lo-Swing Lathe.
- 1-8"x60" Lo-Swing Lathe.
- 1-8"x108" Lo-Swing Lathe.

GRINDERS

- 1-No. 60 Heald Internal.
- 1-10" Landis Internal.
- 2-6"x32" Norton Plain.
- 3-6"x20" Fitchburg Automatic.
- 3-12"x30" Fitchburg Plain.
- 1-12"x30" Fitchburg Automatic.
- 2-16"x66" Landis Plain.
- 1-26"x96" Landis Plain.

ENGINE LATHES

- 1-14"x6' Hendey.
- 1-16"x6' Hendey.
- 8-14"x6' Reed Prentice.
- 4-17"x6' LeBlond.
- 4-19"x8' LeBlond.
- 1-18"x8' Oliver.

ENGINE LATHES—Continued.

- 1-36"x26' Putnam.
- 1-33"x18' Bridgeford.
- 1-24"x24' Putnam.
- 1-24"x16' Lodge & Shipley.
- 4-18"x10' Lodge & Shipley.
- 1-30"x13'6" Oliver.
- 1-50"x20' Fifeild.
- 1-60"x40' Fifeild.
- 1-50"x28' Fifeild.
- 1-96"x24' Fifeild.
- 1-96"x36' Fifeild.
- 1-96"x60' Fifeild.

TURRET LATHES & SCREW MCHS.

- 2-3"x36" J. & L.
- 2-2-A Warner & Swasey.
- 1-3-A Warner & Swasey.
- 4-No. 4 Warner & Swasey.
- 4-No. 3 Stecher.
- 1-No. 1 Foster.
- 1-No. 2 Foster.
- 1-No. 2 Warner & Swasey.
- 1-No. 6 Foster.
- 1-No. 9 Foster.

MISCELLANEOUS

- 1-48"x48"x12' Ingersoll Mill.
- 1-24"x24"x10' Ingersoll Mill.
- 1-No. 1 1/2 American Plain Mill.
- 1-Van Norman Hand Mill.
- 1-No. 1/2 Van Norman Duplex Mill.
- 1-No. 2-A Brown & S. Univ. Mill.
- 1-No. 1-M Cincinnati Mill Plain.
- 2-No. 3 Kempnath Plain Mill.
- 1-No. 3 Cincinnati Plain Mill.
- 1-3 1/2" Acme Bolt Cutter.
- 1-4" Cox Pipe Machine.
- 1-2" Jarecki Pipe Machine.
- 1-6" Oster Pipe Machine.
- 3-No. 2 Pratt & W. Auto. Millen.
- 1-16" Davis Shaper.
- 1-20" Davis Shaper.
- 1-24" Davis Shaper.
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We have machines for every purpose. Mail us your inquiries.*

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Entire Machine Tool Equipment
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A Few Choice Items

Nos. 52, 53, 55 & 56 National Acmes.
Nos. 0, 1, 2, 3 & 4 LaPointe Broaches.
14" to 45" Upright Drills, stationary and sliding heads.
2—No. 310 Baker Heavy Duty Drill Presses.
Natco Multiple Spindle Drills—all sizes.
Cylindrical Grinders, 6"x32" up to 14"x72".
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3—18"x12" Gould & Eberhardt Gear Hobbers.
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Walker Vertical Single Stroke Rotary Grinder.
1—No. 16 Blanchard Vertical Surface Grinder, M. D.
2—16"x6" Lodge & Shipley Lathes, 3 step cone, qk. ch. gr.
1—18"x8" Lodge & Shipley Lathe, 3 step cone, qk. ch. gr.
3—21"x24"x10" LeBlond Heavy Duty Crankshaft Lathes.
4—21"x10" LeBlond Heavy Duty Automatic Lathes.
36"x14" Bridgeford Geared Head Lathe—2 carriages.
3—No. 4 Warner & Swasey Turret Lathes, G. F. H.
1—No. 6 Warner & Swasey Turret Lathe, G. F. H.
5—No. 4 Foster Turret Lathes, G. F. H.
5—No. 6 Foster Turret Lathes, G. F. H.
21" Gisholt Turret Lathe—2 carriages—3½" hole.
6—24" Gisholt Turret Lathe—2 carriages—6¼" hole.
2—No. 3 Cincinnati H. P. Vertical Millers.
2—No. 4 Cincinnati H. P. Horizontal Millers.
5—No. 3 Kemp-Smith Heavy Duty Horizontal Millers.
3—No. 4 LeBlond Heavy Duty Horizontal Millers.
1—36" Pratt & Whitney Vertical Surface Grinder.
3—No. 60 Heald Automobile Cylinder Grinders.
1—15" Springfield Monitor Turret Lathe for Brass.
2—9"x12" Porter-Cable Mfg. Lathes.
1—Fisher Oil Grooving Machine, Cap. 5"x8".

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Tool From "Oviatt"—Is An
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Toledo Knuckle Joint Coining Press, No. 666.
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Smith & Mills 17", American 20" Shapers.
Briggs Millers, Type "B" 34"; Type "A" 22".
Brown & Sharpe No. 3-A Universal Miller.
Becker Vertical Millers, Nos. 5-C and 6.
Betts 3" Bar Horizontal Boring Mill.
Oesterlein Universal Tool Grinder, No. 3.
Norton No. 1 Tool & Cutter Grinder.
High Speed Riveting Hammers, Nos. 3A-HD & 4A.
American No. 2 Oil Separators.
Acme Bolt Cutters, 2½" Single.
Garvin Tappers, Nos. 2 & 2-BG.
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Bulldozers, W. & W. Nos. 3, 4, 7 & 8.
Gridley 3¼" Single Spindle Automatic.
New Britain Auto. Chucking Nos. 33 & 24.
Libby 26" Turret Lathe, hole in spindle 7½".

*The Above And Hundreds Of Other
Machine Tools In Stock*

D. C. OVIATT & CO.

1102 St. Clair Ave.,

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At prices commensurate with quality

BORING MILLS.

- 24" Bullard vertical.
- 30" Colburn vertical.
- 34" Colburn vertical.
- 36" Bullard vertical.
- 42" Bullard vertical.
- 60" Bullard vertical.

GEARED DRILLS.

- 24" Superior, sliding head.
- 26" W. F. & John Barnes.
- D-3—24" Colburn heavy duty.
- 3-D—24" Minster heavy duty.
- 6-spindle Foote-Burt, adj. rail.
- D-31 Fox Multi. 28"x44", rect. hd.

RADIAL DRILLS.

- 2" Fosdick plain, taper attachment.
- 3" American plain, tapping att.
- 4" Fosdick plain, tapping att.
- 5" Pond plain.

PRESSES

- No. 16 Bliss o. b. i., plain.
- No. 3 Rockford o. b. i., plain.
- No. 3 Consolidated o. b. i., grd.
- No. 4 Bliss o. b. i., grd.
- No. 37½ Bliss straight sided, pl.
- No. 55 Consolidated plain straight side.
- No. 90-E Toledo double crank plain, straight side.

PUNCHES and SHEARS

- No. 1-A New Doty, single end.
- No. 9-C Hendley & Whittemore, double end, ¾" in ¾".
- No. 59 Hendley & Whittemore, single end, ½" in ¾".
- No. 16 Williams-W., ½" in ¾".
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High Grade Used Machine Tools

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The E. A. KINSEY COMPANY, Cincinnati, Ohio

Branches: Dayton, Hamilton, Columbus, Louisville, Indianapolis.

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- 30" Barnes 4-spd. Style B Gang.
- 24" Gang Radial.
- 3" Hilbert Radial.
- 3" & 5" Bickford Radials.
- 5" Niles Universal Radial.

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- 14x8 Lodge & S., q.c.g., tap. att.
- 15x6 Von Wyck Standard.
- 16x8 Greaves-K. Standard.
- 18x10 Rahn-Carpenter Stand'd.
- 20x8 Prentice Standard.
- 28x14 Pratt & W. Standard.
- 36x16 Putnam.
- 42x14 Bradford Standard.

Turret and Screw Machines

- 7" & 2" Cleveland Auto.
- 12" & 16" Warner & Swasey.
- Nos. 2 & 4 Warner & Swasey.
- 14" P. & W. Wire Feed.
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- 14" Woods Tilted Turret.
- 26"x10" Springfield Universal.

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- No. 2 Auto. Screw.
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- No. 14 Knight Vert. Dr. & Mill.
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- Nos. 32 & 35 G. & L. Horizontal Bordrillmil.
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- 3/16" Shuster Riveter.
- Davis 5" & 6" Cut-off Mchs.
- 26"x26x6 Pond Planer.
- 30x30x8 Gray Planer.
- LeBlond Univ. Cutter Grinder.
- Cincinnati Univ. Cutter Grinder.
- 12" Wet Tool Grinder.
- 10"x20" Landis Plain Grinder.

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36" Colburn Heavy Duty Drill
No. 14 Natco Drill
4' Western Radial
10x36 Norton Grinder
14x36 Norton Grinder
No. 70 Heald Internal Grinder
24" Bullard Vertical Turret Lathe
36" Gisholt Vertical Turret Lathe
No. 4 Cincinnati Plain Miller, S. P. D.
28" Cincinnati Duplex Miller
2 $\frac{1}{4}$ -3 $\frac{1}{4}$ Cleveland Model A Automatic

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- 7-13" x 5' Willard.
- 6-14" x 6' Rockford.
- 5-18" x 8' Boye & Emmes.
- 30-20" x 8' American.
- 14-20" x 8' LeBlond.
- 5-20" x 12' American.
- 5-20" x 18' American.
- 20-21" x 10' LeBlond.
- 10-24" x 11' Cisco.
- 3-24" x 12' Providence.
- 1-24" x 15' Chard.
- 1-24" x 16' Lodge & Shipley.
- 1-24" x 24' Lodge & S. selective hd.
- 7-25" x 10' LeBlond.
- 10-25" x 12' LeBlond.
- 24-28" x 10' Canada.
- 10-28" x 18' Bridgeford.
- 18-32" x 12' Pittsburgh.
- 4-36" x 30' Pittsburgh Geared Hd.
- 3-36" x 37' Niles Bement Pond.
- 1-51" x 30' LeBlond.
- 1-56" x 44" x 18' Johnston.
- 1-60" x 18' Johnston.

MILLERS

- 2-No. 1 B Milwaukee.
- 5-No. 2 Kemp Smith.
- 3-No. 2 Rockford.
- 2-No. 28 Ohio.
- 7-No. 2-B Hvy. Brown & Sharpe.
- 4-No. 3 Kemp Smith.
- 9-No. 3-B Hvy. Brown & Sharpe.
- 2-No. 4 Cincinnati.
- 2-No. 4 LeBlond.
- 1-No. 5 Cincinnati, Hi-power.
- 3-No. 4-B Becker.
- 2-No. 3 Cincinnati Vertical.
- 2-No. 4 Cincinnati Vertical.
- 4-No. 5-C Becker.
- 3-No. 6 Becker.

BORING MILLS—Vertical

- 3-24" Bullard "New Era."
- 1-44" Niles Bement Pond.

BORING MILLS—Vertical—Cont.

- 1-48" Colburn.
- 1-54" Bullard.
- 1-43" Colburn.
- 2-62" King.
- 3-72" Cincinnati.

BORING MILLS—Horizontal

- 1-No. 31 Lucas.
- 3-3" Foote-Burt.
- 1-No. 3 Rochester Floor Borer.

DRILL PRESSES

- 1-28" Snyder.
- 1-No. 121 Baker.
- 1-No. 24 Foote-Burt.
- 1-No. 25 Foote-Burt.
- 6-No. 23 2-spd. Henry & Wright.
- 1-3-spindle Henry & Wright.
- 4-6 spindle Allen.

PLANERS

- 1-24" x 24" x 6' American.
- 1-24" x 24" x 6' Liberty.
- 2-36" x 36" x 10' Bickett.
- 1-36" x 36" x 12' Woodward & P.
- 3-36" x 36" x 18' Cincinnati.
- 3-42" x 42" x 10' Gray.
- 1-72" x 56" x 36' Cincinnati.

GRINDERS

- 3-6" x 18" Landis.
- 12-10" x 36" Norton.
- 3-10" x 72" Norton.
- 3-12" x 26" Modern.
- 11-14" x 50" Norton.
- 1-18" x 72" Norton.
- 1-18"-30" x 96" Norton Gap.

PRESSES

- 2-No. 4 Walsh.
- 1-No. 74 Bliss Geared.
- 1-No. 79 Bliss Geared.
- 1-No. 93-A Toledo Double Crank.
- 1-No. 205 Toledo Double Crank.
- 1-No. 94-F Toledo Double Crank.
- 1-No. 69 Stoll Geared.
- 1-No. 87 Bliss Geared.

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Of Machine Tools and Plant Equipment of the

RUSSEL MOTOR AXLE CO. at NO. DETROIT, MICH.

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No. 612 Fellow gear shaper. G. & E. gear roughers.

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20" R. A. Kelly shaper.

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3" to 14" Gridley multiple spindle automatic screw machines.
24" to 44" single spindle automatic screw machines.

MILLING MACHINES

No. 0 LeBlond plain. No. 5 Hendey Lincoln type.
18" Cincinnati duplex. No. 2 Cleveland plain.
No. 3 Hendey Norton plain. Model "A" Gooley & Edlund.

ENGINE

LATHES

18"x 8' Hamilton. 24"x12' Reed.
14"x 3' F. E. Reed. 14"x 6' Pratt & Whitney.
20"x10' American.

TURRET

LATHES

6-A Model 2 Potter & Johnston Fitchburg Low-Sw. 3"x60-3"x80-8x80.
auto. turret lathe. 14"x8" & 3"x36" Pratt & Whitney.
Nos. 3, 4 & 6 Warner & Swasey. 2"x28" Pratt & Whitney.
3"x36" Jones & Lamson. 7-A Chucking machines.
24" Gisholt, 6" hole. Fay Auto. 12" Plain and Taper.

RADIAL DRILLS

4' Drees, 20"x30" table.

DRILL PRESSES

22", 25" & 26" Barnes single spdl. 4-spindle Foote-Burt gang, 3" spdl.
25" J. E. Snyder Co. 4-spindle Foote-Burt gang, 34" spdl.
25" Sibley Machine Tool Co. 6-spindle multiple Baush
Nos. 413 & 416 Baker Brothers. 16-spindle multiple Baush, b. d.
No. 23 Foote-Burt 2-spdl. gang. 24-spindle multiple Baush.
224" Barnes 3-spindle gang.

PRESSES

Cleveland single end punch, 12" thr. 15-ton Lucas geared force.

GRINDERS

10A Bryant internal. No. 2 Gould & Eberhardt cutter.
No. 1 Besly plain, universal table. 12"x42" Landis universal.
No. 615 Fitchburg cylindrical. No. 3-A Landis universal.

BORING AND TURNING MILLS

30" Gisholt boring mill. 18" Cleveland horiz. boring mill.

MISCELLANEOUS

Nos. 3, 3A & 4 LaPointe broach. mch. No. 2X Garvin auto. tapping mch.
Thompson type "C" riveter. 6 Gear testing machines.

MOTORS

3 Phase, 60 cycle, 220 volts
75 h. p. General Electric, 900 r. p. m. 50 h. p. Wagner, 900 r. p. m.
40 h. p. Western Electric, 900 r. p. m. 35 h. p. Westinghouse, 900 r. p. m.
30 h. p. Wagner 700 r. p. m. 30 h. p. Wagner, 900 r. p. m.
30 h. p. Fairbanks-Morse, 900 r. p. m. 30 h. p. Fairbanks-Morse, 1200 r. p. m.
15 h. p. Wagner, 900 r. p. m. 10 h. p. Fairbanks-Morse, 900 r. p. m.

Transformers, Pittsburg 3-100 k. v. a.

Centrifugal Blower, General Electric.

Zenz A. C. Arc Welder.

Motor Generator set type M. I. C.

Wotten battery charging motor generator, type B. E 21-6.

Shafting, Belting, Pulleys, Hangers and Small Shop Tools.

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84" swg. x 46' bed Putnam Grd. Hd.
66" swg. x 46' bed Putnam Grd. Hd.
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60" swg. x 36' bed Putnam Grd. Hd.
54" swg. x 20' bed Pond.
30" swing x 20' bed McCabe, Quick
Change Cone Drive.
30" swing x 14' High Duty Lathe,
Quick Change.
26" swg. x 14' bed N.B.P. Motor-dr.
24" swing x 14' bed Reed-Prentice.
42" Baush Boring Mill, 2 heads.
24" Stroke, Niles-Bement-P. Slotter.
4' Arm Radial, Carlton.
No. 2 Cincinnati Vert. Milling Mch.

42" Baush Boring Mill, 2 hds.
50" Bridgeport Boring Mill, 2 hds.
24" Str., N.B.P. Slotter, mtr.-dr.
4' Arm Carlton Radial.
No. 2 Cincinnati Vert. Miller.
No. 3 Cincinnati Plain Miller.
8x30 Modern Grinder.
No. 3 Baker Keyseater.
18" Ohio Shaper.
20" Smith & Mills Shaper.
No. 6 Bliss Press.
28" Espen-Lucas Cold Saw.
50 lb. Mayer Bros. Hammer.
25 lb. Dupont Hammer.
22" Gleason Bevel Gr. Planer.

These Tools still set up in operation, special prices before moving to warehouse.

PLANERS

84"x60"x30' Pond, 4 heads.
54"x54"x12' Pond, 4 heads.
48"x48"x14' Sellers, 3 heads.

PLANERS—Continued

48"x48"x15' Pond, 2 heads.
26"x26"x 6' Niles, 1 head.

McCABE "2-in-1" DOUBLE SPINDLE LATHES

38"/60" swing x 32' bed—complete with Geared Face Plate, Taper Attachment. Can also include motor and silent chain.
26"/48" swg. x 18' bed Geared Face Plate.
24"/40" swg. x 12' bed Former patt'n.

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18" Double End Punch and Shear.
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50" McCabe Punch and Shear.
60" Hilles & Jones Horiz. Punch.
8' Rolls, heavy type, power raise.
10' Bending Rolls, drop end housing.
19" Gap Air Riveter.
800-lb. Bement-M. Steam Hammer.

Big Lathe

110' Swing, 40' Bed,
Triple Geared Lathe.
Cone drive or can be
arranged for belted
motor drive with motor
on top of headstock.

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30" and 36" BULLARD boring mills, 3-jaw chuck tables.
 36" GISHOLT turret boring and turning mill.
 52" (swings 58") ROGERS-HEMPHILL boring mill, 2 heads.
 24" bar LUCAS horizontal, gearbox drive.

DRILL PRESSES

26" BARNES, sliding head, 3-spindle BARNES 22", back
 back gear, power feed. gear, power feed.
 5' and 6' AMERICAN radials, No. 15 HARRINGTON 4-spdl.
 gearbox, tapping attachment. rail type, 14" cap.

GEAR CUTTERS

No. 12 BARBER-C. hobbers (2). No. 6 FELLOWS gear shaper.

MILLING MACHINES

No. 2 ROCKFORD universal, Model "A-B" BECKER vertical,
 also plain. No. 4 LeBLOND plain.

No. 3 CINCINNATI vertical.

PLANERS

26"x26"x8' CINCINNATI, one 36"x36"x10' WILSON, 2 heads,
 head. like new.
 30"x30"x6' POND, one head. 36"x30"x12' GORTON, 2 heads.

PRESSES

No. 5 LOSHBOUGH-J., o. b. i. No. 6 geared WALSH, s. side.

The above is small part of our stock. Send for List No. 102.

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Of installing a Radial Drill? If so, the following machines are REAL bargains:

- 1—2½' Standard type, heavy duty, MUELLER radial drill, gear drive.
- 1—3' Standard type, heavy duty, MUELLER radial drill, gear drive.
- 1—4' Standard type, heavy duty, MUELLER radial drill, gear drive.

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The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

Liquidation Sale

OF THE

Aultman & Taylor Machinery Co.,
Mansfield, Ohio

Random Selections

Air Compressor, belted, Chicago 9"x11", m. d.
Air Compressor, steam driven Imperial 10, 2-stage Duplex 888 cu. ft., steam ends 12"x16"; air 19"x16" & 12"x16"; 90%.
Air Compressor, steam, Ingersoll-Rand, 1000 cu. ft. single stage.
Air Compressor, steam, Chicago Pneumatic Tool, 600 ft. single stage.
Boring Mills, Barret 36", cylinder.
Boring Mills, Baush 60", 2-heads, screw cutting.
Boring Mills, Bullard 36", New Era 85%.
Boring Mills, Bullard 54", Maxi Mills. 85%.
Boring Mills, King, 2-42" & 3-52", 85 to 90%.
Bending Rolls, 12"x1" Niles Pyramid.
Bending Rolls, 16"x1 1/2" Pyramid, motor driven.
Bull Riveter, Hanna 102"—120 ton; 1" capacity.
Bull Riveter, 108"—62 ton 1" capacity Pedrick & Ayer.
Bulldozer, No. 8-BW Ajax, 90% condition.
Butt Welder, Federal 65 KW, 3-phase 60-cycle 440-volts.
Butt Welder, Winfield 20 KVA, 3-phase 60-cycle 440-volts.
Cutting-Off Machine, Huribut Rogers, 4" capacity.
Hydraulic Press, Metalwood No. 26 Forcing.
Hydraulic Press, Metalwood 65-ton Straightening.
Hydraulic Press, Niles 400-ton 10"x30", M. D.
Hydraulic Press, Defiance Rim No. 4, 60-ton.
Grinder, No. 260 Heald, Ring, 16" magnetic chuck.
Grinder, Norton plain 14"x72".
Grinder, Norton plain 10"x52".
Grinder, Norton 22"x34"x120" crankshaft.
Grinders, Landis plain 16"x48" crankshaft.
Grinders, Landis plain 12"x52".
Grinder, Bath universal Nos. 2 1/2 & 4 B. & S. universal.
Lathes, American 24"x12", m. d. 3-s., d. b. g., 90%.
Lathes, American 20"x16" geared head, motor driven, 90%.
Lathe, Fifeild 24"x24" 5-step cone.
Lathe, Lodge & Shipley 36"x18" patent head, 80%.
Lathe, Lodge & Shipley 38"x18" t. geared head, m. d., 90%.
Punch & Shear, Long & Allstatter No. 2, b. d., 48" throat.
Punch & Shear, Southwark No. 5 1/2 Shear, b. d., 56" throat.
Punch & Shear, Hilles & Jones No. 2 Horizontal Punch.
Punch & Shear, Southwark No. 5 Punch, b. d., 48" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 36" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 60" throat.
Low-Swing Lathe, 4"x108", 90%.
Gisholt Turret Lathe, 28" swing.
J. & L. Turret Lathes, 2"x24" & 3"x38".
Libby Lathes, 6-18" and 1-22" swing.
Cranes, Toledo 30' span; 2-5 ton and 1-7 1/2 ton, 3-phase 60-cycle 440-volts.
Yoke Riveter, 40 Ton, 60" throat, 1/2" capacity.
Yoke Riveter, Hanna Pneumatic 35 1/2" throat, 18" gap, 8"x12" cylinder.
Yoke Riveter, Hanna Pneumatic 12" throat, 12" gap, 8"x10" cylinder.

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Cleveland, Ohio

NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

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9" to 13" Barnes, h. s., cp. r., new.
12" x 8' Cleveland, geared head.
14" x 8' Young.
14" x 8' Hamilton, grd. hd., motor dr.
14" x 8' Sidney, double back geared.
14" x 10' Reed-Prentice.
16" x 8' Sidney, double back geared.
18" x 10' American, quick change.

20" x 8' American, geared head.
20" x 10' Prentice, taper.
24" x 24' Prentice, with raising block.
25" x 12' Sidney heavy duty.
25" x 14' Schumacher & Boye.
28" x 8' Bridgeford, heavy duty.
Ames precision bench, $\frac{1}{2}$ " & 1" cap.
8x60" & 10x72" Fitchburg Lo-Swing.

TURRET LATHES and SCREW MACHINES

1 $\frac{1}{2}$ " Tilted turret hand screw mche.
1" and 1 $\frac{1}{2}$ " Mulholland.
2x24 & 3x36 J. & L., dbl. equipment.
No. 3-B Foster, 8" capacity, new.

6" Gridley auto., single spindle.
Nos. 52 and 56 National Acme.
 $\frac{1}{2}$ " P. & W. automatic, single spdl.
21" Gisholt.

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" American, tool room.

16" & 24" Barker, b. g. crank.
16" Smith & Mills, b. g. crank.
20" Walcott, geared.

PLANERS

24" x 24" x 6' Gray.
32" x 32" x 8' Gray.

36" x 36" x 10' Cincinnati, 2 heads.
60x60x17' Betts, 2 heads.

PRESSES

Nos. 3-A & 6-A Willard inclinable.
No. 1 Toledo inclinable.
Nos. 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$ & 4 Robinson.

Emco, bench, for radio parts.
No. 35 Niagara straight side.
Perkins, dbl. housing, wt. 4,000 lbs.

DRILLS and RADIALS

3' and 3 $\frac{1}{2}$ ' Silver, new, gear box.
3' & 4 $\frac{1}{2}$ ' Morris plain gear box.
3 $\frac{1}{2}$ ' Canedy-Otto plain, new.
4' Universal Radial Drill Co. plain.
Sensitive 1, 2, 3, 4 and 6 spindle.

22", 24", 26", 28" and 32", sliding hd.
20"-24" & 26" Barnes, all geared.
4-spindle Sigourney sensitive.
4-spindle Reed sensitive.
Electric drills, Thor, all sizes.

MILLING MACHINES

No. 2 Kemp Smith universal.
U. S. and Whitney hand.
No. 25 Becker plain, power feed.
No. 1 B. & S. universal.
Nos. 2-A & 4-B Becker vertical.

No. 3 LeBlond, with vertical attach.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty, 24x8 table.
No. 7 Becker Lincoln type.
Oesterlein 24x7 $\frac{1}{2}$ x18 plain.

GRINDERS

Nos. 1, 3 & 78 W. & M. surface.
No. 2 W. & P. 10x30 universal.
6"x15" Fitchburg plain.
12x36 Cincinnati universal.
12x42" & 16"x30" Landis plain.
12"x72" Brown & Sharpe plain.
36" and 60" Yates plate.

Perfection cylinder.
No. 60 Heald cylinder.
Nos. 2 & 3 Ohio universal & tool.
No. 4 Gardner 20" double disc.
No. 20 Bryant, chucking.
B. & S. No. 24 dbl. spdl., cylinder.
Capital internal, new, 2"x2".

MISCELLANEOUS

Band saw, metal, Klemm.
Band saws, Napier 4"x4", 10"x10".
Bending rolls, 7' for $\frac{1}{2}$ " plate.
Boring mill, Bullard 34" turret hd.
Boring mill, 54" & 60" Colburn, 2 hds.
Brake, 10', 18-gauge metal.
Broaching machine, No. 3 LaPointe.
Cold saw, Burr, 3" capacity.
Compressors, 3x4, 8x8 and 12x10.
Drawing tables, adjust., 42"x8' top.
Gear cutter, 26" No. 3 B. & S.
Gear millers, Bilton No. 1. (5).
Hammer, 40 lb. Bradley, helve.
Hammer, 150 lb. Standard drop.

Oil separator, Springfield.
Pipe machines, 2", 4", 6" & 12".
Pumps, Gould triplex, 6"x8" & 7"x5".
Punch & shear $\frac{1}{2}$ by $\frac{1}{2}$, 10" throat.
Riveter, $\frac{1}{2}$ " Schuster.
Riveting hammers, No. 3-A h.sp. (2).
Scale, 1500 lb. Toledo, dial type.
Sceleroscopes, Shore, (3).
Shear, 5' Robinson, for 10 gauge.
Shear, No. 20 Quickwork, 36" throat.
Shear, circular, Pettingill 60".
Slotter, 18" Bement-Miles.
Tapping mche., $\frac{1}{2}$ " Rickert-Shafer.
Threading mche., W. & P. 2-epindle.

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MACHINERY COMPANY
COLUMBUS OHIO

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No. 79½ Bliss Straight Side Tie Rod Press,
20" or 9" stroke—will give either.

Condition, first class

For immediate shipment:

5½-7½" Cleveland Model A Screw Machine.
2" Cleveland Model A Screw Machine.
No. 2-G Brown & Sharpe Auto Screw Machine.
No. 1½ Valley City Universal Miller.
No. 2-B & 2-B Heavy Brown & Sharpe Millers.
No. 3 Cincinnati Plain Millers.
No. 3 Kemp Smith Plain Miller.
No. 3 LeBlond Heavy Plain Miller.
6"x32" Norton Plain Grinder.
14"x72" Norton Plain Grinder.
16"x48" Landis Crank Pin Grinder.
Nos. 11 and 12 Natco Multiple Drills.
12"x32" Landis Universal Grinder, nearly new.
16" Stockbridge Shaper, single geared.
20" Rockford Back Geared Shaper.
24" Kelly Back Geared Crank Shaper.
30"x30"x8" Ohio Planer, heavy type.
Five Bolt Cutters, 1½" to 4" capacity.
No. 2 Waterbury Farrel Bolt Trimmer.
Nos. 0, 2 and 3 Mitts & Merrill Keyseaters.
80 lb. Bradley Cushion Helve Hammer.
No. 3 Barber-Colman Gear Hobber, nearly new.
36" Cincinnati Back Geared Drill & Tapping Attach.

**24" and 36" Bullard Vertical Turrets,
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24"x24"x12' Ingersoll.
No. 7 Becker Mfg.
No. 2½ Hendey Mfg.
No. 5-C Becker Vertical.
No. 3 Brown & Sharpe Vertical S. P. D.

WRITE

MILLERS

LATHES

11"x 5' Myers.
12"x 5' Vernon Q. C. G.
14"x 6' Monarch Q. C. G.
16"x 6' Draper.
16"x 8' Bradford Q. C. G.
20"x 8' American Q. C. G.
24"x12' American Q. C. G.
36"x32' LeBlond Q. C. G. 2 carr.

PRESSES

No. 4 V. & O. 2" str. O. B. I.
No. 55 DGG Ferracute S. S. 70 ton pres.
No. 56 DGG Ferracute S. S. 100 ton pres.
No. E-57 Ferracute S. S. 1500 ton pres.

MISCELLANEOUS

6' H. D. Plate Bending Roll, cap. ½" plate.
150 ton Caldwell Hydraulic Wheel Press.
60 ton Defiance Hydraulic Wheel Press.
Shipbuilders Angle Iron Beveling Machine.
1½" Ajax Forging Machine.
1½" Carlin Alligator Shear.
1½" G. & McK. Rod Shear.
60" L. & A. Plate Shear, 36" throat, cap. 1" plate.
6"x6"x1" Cleveland Double Angle Shear, M. D.
Standard Engineering Cooper and Notcher.
Cleveland Horizontal Rail Straightener.
Lovekin Expanding and Flanging Machine.
6' N. B. P. Radial, tapping attachment, M. D.

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- 4—Bullard 24" New Era type, vert.
- 2—Niles-Bement-Pond 52", vert.
- 1—Landis No. 35 horiz., floor type.

DRILLS—Upright and Radial

- 3—Snyder 28" vertical.
- 1—Minster D-3, heavy duty.
- 4—3/4" Mueller Radials, S. F. D.
- 1—Foote-Burt 44, 4-spindle, rail.
- 2—New Turner No. 3, vert. turret.
- 1—N.-B.-P. 96" Ridgeway, motor drive, plain radial.
- 1—Western 6", plain radial.
- 1—Baush 6".

DRILLS—Multiple Spdl., Rect. Head

- 1—Natco No. 14, q. c. g.
- 1—Natco No. 30, 12 spindle.
- 2—New Baush No. 3, 21 spindle.
- 1—New Baush No. 4, 56 spindle.
- 1—Fox, 6 spindle.

PLANERS

- 7—Putnam 26x26x8', 2 heads.
- 1—Woodward & P. 36x36x12', 4 hds.
- 1—Putnam 48"x48"x12', 2 hds. m. d.
- 2—Cleveland 30x30x8 and 36x36x8 openside, NEW.

MILLERS—Plain, Mfg., Univ. & Vert.

- 2—Milwaukee No. 14 plain.
- 1—Brown & Sharpe No. 2 plain.
- 1—Milwaukee No. 3-B universal.
- 1—Milwaukee No. 3-B plain.
- 2—Briggs type B.
- 2—Taylor & Fenn vertical.
- 1—Becker No. 4B and No. 5C vert.
- 1—Becker "C" vertical.
- 1—Becker No. 2H, vertical.
- 1—Newton No. 1 duplex.

GRINDERS

- 1—Blanchard No. 16, motor driven.
- 1—Springfield-B., 12x12x48 vert.
- 1—Brown & Sharpe No. 14 plain.
- 16—Cincinnati No. 2, 12x36.
- 4—Norton 6x32 & 2—Norton 10x36.
- 1—Fitchburg 12x54.
- 1—Norton 16x36.
- 4—Heald Nos. 60, 65 & 70.
- 3—Heald rot. sur. Nos. 210, 255, 260.

PRESSES

- 2—Toledo No. 53, flywheel.
- 4—Toledo No. 55 & No. 55 1/2, grd.

GEAR CUTTERS

- 2—Barber-Colman No. 2.
- 4—Hercules 8".
- 2—Brown & Sharpe 3x26.
- 1—Brown & Sharpe No. 13.
- 1—Gould & Eberhardt 60", spur.
- 1—Fellows Nos. 61, 6 & 612.
- 1—Gleason 6", 11" & 18", bevel.

TURRET & SCREW MCHS.

- 1—Foster No. 1-B turret.
- 1—Warner & S. Nos. 2-A and 3-A.
- 3—Foster No. 2-B turret.
- 1—Warner & Swasey No. 4, p. f.
- 1—Warner & Swasey No. 2, p. f.
- 1—New Foster No. 10 turret.
- 4—Greenlee, 2x26" turret.
- 4—J. & L. 3x24.
- 1—J. & L. 2-spindle turret.
- 1—J. & L. 3x36" flat.
- 1—Acme 1 1/2" turret.
- 2—P. & W. 1x14 screw.

SHAPERS and SLOTTERS

- 1—G. & E. 16".
- 2—New 16" Davis, s. p. d.
- 1—American, 25".
- 1—Newton 10" slotter.
- 1—Pratt & Whitney 10" slotter.

AUTOMATIC SCREW MCHS.

- 8—New Britain No. 24.
- 2—Cleveland 2 1/2" Model A.
- 15—Cleveland 1 1/2" to 3" capacity.
- 1—Cleveland 1 1/2" to 1 1/2" capacity.
- 7—Gridley 4 spindle, cap. 1 1/2".

LATHES

New Star Lathes, all sizes with all attachments.

- 12—New South Bend 16x8 and 18x8 gap; 21x16.
- 10—New South Bend 15x5.
- 1—LeBlond 26x12, univ. crankshaft.
- 1—Walcott 26x14, 6", q. c. g.
- 1—Johnson 30x12, motor dr.

MISCELLANEOUS

- 1—Acme bolt cutter, 3" cap., motor.
- 1—National bolt cutter, 2-spdl., 1".
- 1—Acme 1" cap. dbl. hd. bolt cutter.
- 1—Landis 1 1/2" bolt cutter, dbl. hd.
- 1—Landis 1 1/2" 3-sp. mtr. dr. bolt cut.
- 1—Quickwork No. 4-B rot. shear.
- 1—New Quickwork No. 6 rot. shear.

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Scully-Jones & Co., 2012 W. 13th, Chicago

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Bunting Brass & Bronze Co., Toledo, O.

Bearings, Babbitted

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Bearings, Bronze

Bunting Brass & Bronze Co., Toledo, O.

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Boring Bars

Fedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder

Fedrick Tool & Machine Co., Philadelphia

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Barber-Colman Co., Rockford, Ill.
Jacobs Mfg. Co., Hartford, Conn.
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Westcott Chuck Co., Oneida, N. Y.

Chucks, Drill and Tap

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Peter Bros. Mfg. Co., Algonquin, Ill.
Scully-Jones & Co., 2012 W. 13th, Chicago

Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

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Cutters, Milling

Barber-Colman Co., Rockford, Ill.
Gossens Mfg. Co., Rochester, N. Y.
Whitney Mfg. Co., Hartford, Conn.

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Pedrick Tool & Machine Co., Philadelphia

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Apex Machine Co., Dayton, O.

Die Sets
Densy Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Dicing Machines
Henry & Wright Mfg. Co., Hartford, Conn.

Dies, Pipe Threading
Signal & Kester Mch. Wks., Edwardsville, Ill.

Dies, Self-Opening Adjustable
Rickert-Shafer Co., Erie, Pa.

Drill Racks
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Drilling Machine Heads, Multiple
National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

Drilling Machines, Bench
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Horizontal
Rockford Drilling Machine Co., Rockford, Ill.

Drilling Machines, Multiple Spindle
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National Automatic Tool Co., Richmond, Ind.
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Independent Pneumatic Tool Co., 609 W. Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N.A., 5001 N. Lincoln St., Chicago
Wisconsin Electric Co., Racine, Wis.

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Henry & Wright Mfg. Co., Hartford, Conn.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

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Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.
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Henry & Wright Mfg. Co., Hartford, Conn.
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Rockford Drilling Machine Co., Rockford, Ill.
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Gauges, Thread
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Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench
Bedine Electric Co., 2236 W. Ohio St., Chicago
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

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Whitney & Son, Baxter D., Wincendon, Mass.

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Thompson Grinder Co., Springfield, Ohio
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Grinding Machines, Face

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Grinding Machines, Internal

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McDonald Machinery Co., St. Louis
Marr-Galbreath Mch. Co., Pittsburgh, Pa.
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Molitor Mch. Co., Chas., 118 S. Clinton St.,
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Porter-Cable Machine Co., Syracuse, N. Y.
Towsley Mfg. Co., John T., Cincinnati
Whitney & Son, Baxter D., Winchendon, Mass.



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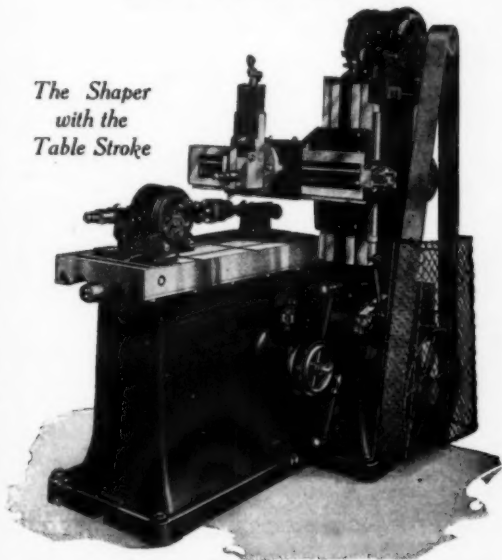
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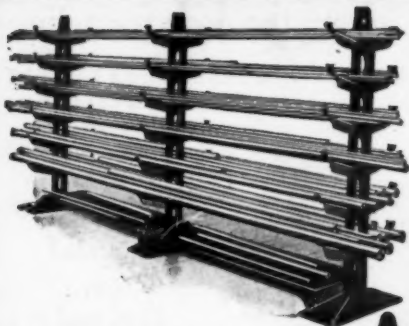
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